



## **IMPROVING THE NUCLEAR REFORM IMPLEMENTATION FOR SUCCESS**

**GRADUATE RESEARCH PAPER**

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**GRADUATE RESEARCH PAPER**

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## **Abstract**

The Post-Cold War began an era of decline in the nuclear enterprise. Leaders were risk-averse in fear of being fired for making mistakes, the nuclear culture lost its experts, organizations were drawn to the conventional fight, and training and education lacked the priority necessary to rebuild the nuclear enterprise. In 2007 and 2008 two major incidents occurred, a necessary evil to bring focus and priority back to the nuclear enterprise. Several reports were accomplished to identify the issues and make recommendations. Some recommendations are successful and some are failures.

The purpose of this paper is identify the successful traits in the process to improve it for follow-on recommendations. Once the basic process was identified, a method was applied to formalize it. The method used for this research paper is critical success factors for the implementation and key performance indicators for assessment. Even though a process and method is identified to ensure the success of an implementation, if not properly followed the chances of success drastically decrease. If the organization identifies the wrong critical success factors or does not continually assess key performance indicators the implemented program will likely fail.

*To my lovely and very understanding wife, three kids, and our Ridgeback. They give me energy when I am exhausted, my motivation to keep me striving to be the best, and my inspiration to smile and laugh every day. Thank for the countless sacrifices you all have endured in the past 396 days.*

*“If your dreams do not scare you, they are not big enough” – Ellen Johnson Sirleaf*

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Maj Allen “Miyagi” Agnes

## Table of Contents

	Page
Table of Contents .....	vii
List of Figures .....	ix
List of Tables .....	x
Improving the Nuclear Reform Implementation for Success .....	1
I. Introduction .....	1
Background .....	5
Problem Statement .....	7
Research Purpose .....	8
Methodology .....	9
Limitations .....	9
II. Literature Review .....	11
Chapter Overview .....	11
Nuclear Enterprise .....	12
Leadership .....	13
Culture .....	21
Organization .....	33
Training .....	37
III. Data Collection and Methodology .....	40
Chapter Overview .....	40
Data Collection .....	40
Case Study .....	41
<i>Categories</i> .....	42
Critical Success Factors .....	44
Surveys .....	49
IV. Analysis and Results .....	51
Chapter Overview .....	51
Decision Making Process: (Investigative Question 1) .....	51
Critical Success Factor Method .....	54
Surveys .....	56
Survey 1: (Investigative Question 2) .....	57
<i>Leadership</i> .....	59

<i>Culture</i> .....	64
<i>Training</i> .....	67
Survey 2 .....	74
Assessment: (Investigative Question 3).....	76
V. Conclusions and Recommendations .....	79
Chapter Overview .....	79
Conclusions.....	79
Significance of Research.....	81
Recommendations for Action .....	82
<i>Recommendation 1</i> .....	82
<i>Recommendation 2</i> .....	84
Summary .....	85
Appendix A: DoD Nuclear Weapons Management Phase I: The Air Force's Nuclear Mission.....	87
Appendix B: DoD Nuclear Weapons Management Phase II: Review of the DoD Nuclear Mission.....	89
APPENDIX C: DoD Defense Science Board Independent Assessment of the Air Force Nuclear Enterprise .....	91
APPENDIX D: DoD Defense Science Board Air Force Nuclear Enterprise Follow-On Review .....	93
APPENDIX E: Independent Review of the DoD Nuclear Enterprise .....	95
APPENDIX F: Reinvigorating the Air Force Nuclear Enterprise .....	100
APPENDIX G: Report Comparison Chart .....	102
APPENDIX H: Survey Questions Results.....	103
APPENDIX I: Graduate Research Paper Storyboard .....	108
Bibliography .....	109
Vita.....	115

## List of Figures

	Page
Figure 1: Research Paper Recommendation Selection Process.....	44
Figure 2: Caralli's Five-Step CSF Method.....	45
Figure 3: Affinity Analysis Example.....	47
Figure 4: KPI Development.....	48
Figure 5: Critical Success Factor Hierarchy .....	49
Figure 6: Caralli's Five-Step CSF Method.....	54
Figure 7: PPLAN Action Item Example.....	55
Figure 8: Ratio of Survey Questions.....	58
Figure 9: Leadership Question 7&8.....	59
Figure 10: Leadership Question 9&10.....	61
Figure 11: Leadership Question 13&14.....	62
Figure 12: Leadership Question 15.....	63
Figure 13: Culture Question 16.....	65
Figure 14: Culture Question 22.....	66
Figure 15: Training Question 28.....	67
Figure 16: Training Question 29.....	68
Figure 18: Training Question 31.....	69
Figure 19: Training Question 32.....	70

## **List of Tables**

	Page
Table 1: Days of Special Effort at Minot AFB .....	27
Table 2: Survey 1 Demographics.....	57

## **Improving the Nuclear Reform Implementation for Success**

### **I. Introduction**

*“With the end of the Cold War, and the sharply reduced likelihood of a nuclear exchange, awareness of the role and power of nuclear weapons has diminished. But their power and uniqueness endure—and must again be clearly understood if they are to play their crucial role in nuclear deterrence.”*

*-James Schlesinger*

During the Cold War (1947-1991), the nuclear mission was the priority of the United States (U.S.) in order to safeguard itself against the Soviet Union. Then Post-Cold War, the U.S. decided to shift its focus to conventional operations, allowing the nuclear mission to go into hibernation. In 2007 and 2008, two significant events occurred that challenged the credibility of the U.S. nuclear enterprise. These events prompted DoD to take a serious look at the nuclear enterprise and implement some major changes. Department of Defense stood-up Air Force Global Strike Command, created Strategic Deterrence and Nuclear Integration (Headquarter Air Force A10), and the restructured the education and training programs. Just as the nuclear enterprise started to gain some momentum it nearly lost its effectiveness in 2014 when the cheating scandals in both the U.S. Air Force and Navy shocked the nation. Due to these setbacks it is more important

than ever to ensure the nuclear reform implementations are successful to maintain the credibility of the nuclear enterprise.

The purpose of this research is to recommend a process for nuclear reform recommendations to be implemented successfully, to include sustainment of the organization or program after it is fully operational. First, using the decision making process, we will start with how an issue becomes a recommendation and then becomes implemented. Before the implementation becomes operational, a series of steps will have to be accomplished to ensure its success. The first five steps, described in Chapter 3, will be accomplished using the Critical Success Factor (CSF) method. The CSFs are the few key areas where “things must go right” in order for an organization to succeed (Bullen and Rockart 1981). Once the CSFs have been achieved the organization or program is on its way to a successful start. At this point the organization or implementation is ready to become fully operational. Once fully operational, the organization or program needs to be continually assessed to ensure it remains successful. Key performance indicators (KPIs), a five step process, are the measurable values used to ensure the organization is achieving its key goals (Lorette 2016).

The appropriate plan allows an organization to successfully implement a recommendation and sustain it. Several well-known reports such as the Welch-Harvey Report, Schlesinger Report, Creedon-Fanta Report, and others, have highlighted issues

within the nuclear enterprise. Lefort, McMurray and Tesvic (2015) surveyed over 2,200 executives in 900 companies and found that the elements that have the greatest bearing on successful implementation of change are ownership and commitment, prioritization, and sufficient resources and capabilities. The Welch-Harvey Report also discovered the disconnect between ownership, passion, and dedication had a negative effect on the nuclear mission (Department of Defense 2014). The reports revealed an alarming number of issues in the nuclear enterprise. These issues affected the unit level to the Office of the Secretary of Defense (OSD) and junior enlisted to senior officers and civilians. Following the incidents in 2007 and 2008, several reports were published. These reports are the main data source for this research.

A key issue identified by the reports was the failure of leadership in the nuclear enterprise. A contributing factor for this failure is the lack of experienced leaders, which was seen during the institutional shift from bomber generals to fighter generals (Schlesinger, Carns, et al., DoD Nuclear Weapons Management Phase I: The AF's Nuclear Mission 2008). This shift challenged Air Force leadership supporting the nuclear mission and as a result there was “a generation of Airmen without inspirational leadership that could motivate an organization to believe in the deterrent value of the nuclear forces.” (Spencer, Ludin and Nelson 2012).

The nuclear enterprise also failed to develop its culture into an operationally focused environment. The nuclear enterprise was focused on perfect test scores, inspection preparation, metrics, and quick fixes rather than mission accomplishment and operational effectiveness (Schlesinger, Carns, et al., DoD Nuclear Weapons Management Phase I: The AF's Nuclear Mission 2008, U.S. Air Force Nuclear Task Force 2008, Spencer, Ludin, and Nelson 2012). Inspection and test results were used to reward or punish, instead of in preparation for mission readiness. As a result, the United States Air Force (USAF) started to train to inspections and not the mission, whereas the United States Navy (USN) looked at inspections as way to correct errors and learn from their mistakes.

After Strategic Air Command (SAC) stood down, no single organization in the USAF was responsible for the nuclear mission. Since then, several efforts were made to improve the USAF's organization to ensure nuclear enterprise initiatives were sustained; Air Force Global Strike Command (AFGSC) stood up, Assistant Chief of Staff for Strategic Deterrence and Nuclear Integration (A10) in Headquarters Air Force (HAF) was created, and the Air Force Nuclear Weapons Center focused its attention on the execution and support of nuclear forces (Department of Defense 2014). Despite these attempts, the USAF is still struggling to find the right organizational structure to maintain the nuclear enterprise.

The Schlesinger Report stated that after the Cold War ended, both training and education in the nuclear enterprise were cut back to the point of near elimination (Schlesinger, Carns, et al., DoD Nuclear Weapons Management Phase I: The AF's Nuclear Mission 2008). The lack of training is more noticeable at units that have dual-capable aircraft (capable of delivering nuclear and conventional munitions). The use of strategic bombers in conventional missions has highlighted the ascendancy of conventional forces and the declining relevance of the nuclear mission (Spencer, Ludin and Nelson 2012). When the mission focus shifted to conventional operations, so did the training.

## **Background**

The end of the Cold War (1947-1991) had a profound effect on the nuclear enterprise and nuclear culture within the military. The U.S. Department of Defense's (DoD) nuclear enterprise is comprised of a strategic triad: USAF intercontinental ballistic missiles (ICBMs), USAF nuclear bombers, and USN ballistic missile submarines. Post-Cold War, the nuclear mission went into hibernation as the strategic focus of the nation shifted to conventional warfare and special operations, which were considered primary to winning the war on terrorism. With that in mind, in 1992, SAC was replaced by a new tactical command known as Air Combat Command (ACC). Upon activation of ACC, all bombers, reconnaissance platforms, battle management resources, and ICBMs were transferred to ACC. The transfer of all bombers and ICBMs to this new command

marked the end of the Air Force's dedication to the nuclear mission (Schlesinger, Carns, et al., DoD Nuclear Weapons Management Phase I: The AF's Nuclear Mission 2008). To emphasize this point, a senior leader commented that the USAF went from doing the nuclear mission 24 hours a day and 7 days a week, to a "part-time task." (Department of Defense 2014). The USAF was not the only service to suffer. In 2013, the USN retired its Tomahawk Land Attack Missile-Nuclear, leaving them with just one nuclear missile, Trident II.

Since the beginning of the tactically focused war on terrorism in 2002, the nuclear enterprise has endured several major incidents. The first incident occurred in 2006, when classified parts were accidentally shipped to Taiwan. According to the report titled "The Unauthorized Movement of Nuclear Weapons and Mistaken Shipment of Classified Missile Components: An Assessment", inexperience and not properly following procedures led to classified parts being labeled as helicopter batteries, which the Defense Logistics Agency then shipped to Taiwan (Spencer, Ludin and Nelson 2012). The error wasn't discovered until 2007 when the Taiwanese finally opened the crate, and notified U.S. officials, who promptly recovered the items. During the same year, an unauthorized movement of six nuclear warheads occurred on a B-52 flight from Minot AFB, ND to Barksdale AFB, LA. An assessment concluded that throughout the entire transfer, a series of missed checklist steps, a lack of oversight and experience, and complacency were

contributing factors (Spencer, Ludin and Nelson 2012). The most recent incident was in 2014, when USN nuclear reactor operators and USAF nuclear missile crews were caught cheating during nuclear certification exams. These three major failures in the nuclear enterprise are not all inclusive, but they were the most significant.

## **Problem Statement**

The end of the Cold War brought significant changes to the nuclear enterprise and to the global security environment. This led the USAF and USN to restructure their combat forces, and to focus on tactical, conventional and special operations. In a 2008 report to the Secretary of Defense (SECDEF), James Schlesinger stated:

Changes made by the Air Force after the Cold War were in response to the defense downsizing of the 1990s as well as national leadership priorities. During that time, the Air Force and other services were experiencing severe resource constraints... With less national emphasis on nuclear weapons during this period, the Air Force failed to grasp the continued need to maintain a viable airpower-based nuclear deterrent capability. Moreover, as the size of the nuclear arsenal was reduced and emphasis shifted to conventional missions, the Air Force failed to articulate the continuing value of the nuclear deterrent (Schlesinger, Carns, et al., DoD Nuclear Weapons Management Phase I: The AF's Nuclear Mission 2008)

In 1992, the USAF implemented its largest organizational change since its inception, leading to splitting of the nuclear enterprise from centralized SAC control to the eventual division of bombers and ICBMs between ACC and Air Force Space Command (AFSPC) (U.S. Air Force Nuclear Task Force 2008). In 1995, Base Realignment and Closure

reduced the nuclear system resources further, and support organizations were closed and dispersed, thus adding to the atrophy. As a result, organizations were consolidated and absorbed the nuclear mission by default. Nuclear proficiency and nuclear-experienced operators and technicians eroded. The mission focus shifted to perfecting tactical conventional operations, while limited attention was paid to merely passing nuclear inspections and testing, although perfect results were still expected. The USAF failed to keep the nuclear mission ‘operationally current,’ thus forcing it into a ‘care-taker’ status with little to no modernization or recapitalization. (U.S. Air Force Nuclear Task Force 2008).

### **Research Purpose**

Numerous reports have identified issues within the nuclear enterprise and made recommendations to remedy them, with mixed implementation results. This research paper will take an analytical approach to find the key factors in successful implementation.

To help find the key factors, the following investigative questions will be addressed:

- 1) What process is used to get a recommendation implemented?
- 2) How does the nuclear enterprise define success?
- 3) How are implementations assessed once they are sustained?

## **Methodology**

The methodology used for this research is a combination of case study and CSF analysis. The CSF method, refined by John F. Rockart in 1979, is used to identify key areas where ‘things must go right’ for an organization to be successful (Bullen and Rockart 1981). Once the CSFs have been identified, KPIs are used to continually assess if the CSFs are being achieved. The CSFs and KPIs all have a development process, which will be described in later chapters.

The recommendations were organized into four categories, which were predefined by the reports. Once the recommendations were categorized, they were checked to see if they were implemented. Once verified, the implementations were assessed through a survey sent to senior leaders in the nuclear enterprise, and confirmed with objective reports and articles. This data was compiled to identify key factors in successful reforms within the nuclear enterprise.

## **Limitations**

A limitation for the research is the classification level of some reports. The USN’s nuclear incident reports are classified. To keep this research unclassified, it will be primarily focused on the USAF, since the majority of its reports are unclassified. Another advantage of using USAF reports, is they provide more detail about implementation results. It was feasible to obtain enough information to conduct an analysis and make

recommendations. Another limitation was gathering the updated status of nuclear reforms. There is one organization, OSD Cost Assessments and Programs Evaluation (CAPE), that tracks the status of nuclear reform recommendations. However, most of their data is classified and For Official Use Only (FOUO). Lastly, AFGSC's Program Action Directive is FOUO, so this research does not use specific information from that document.

## **II. Literature Review**

*“For 70 years, we have deterred and assured. And while our nation's nuclear enterprise is safe, secure and effective, we cannot take it for granted any longer.”*  
*-Admiral Cecil Haney, Commander of U.S. Strategic Command*

### **Chapter Overview**

With the end of the Cold War the erosion of the nuclear enterprise started and several major incidents occurred, which resulted in numerous reports recommending how to get the nuclear enterprise healthy again. In the late 1990s to the early 2000s, various nuclear reform reports were written to identify issues in the nuclear enterprise. Although the reports made recommendations to resolve the issues, these recommendations were mostly ignored. Between 2001 and 2007 over 235 nuclear deficiencies (almost 100 at Minot and Barksdale) were reported by ACC (M. Hoffman 2008). Most of the deficiencies were considered routine and were ignored. In 2007 and 2008 two major setbacks occurred in the nuclear enterprise. After the first major incident in 2007, a call to reinvigorate the nuclear enterprise was badly needed, so another round of reports was written. The reports were derived from DoD's Task Force committees which were chaired by a former Secretary of Defense, Chairman of the Defense Science Board, retired generals and admirals with steep nuclear experience, OSD, and Rand Corp. The findings and recommendations were similar to the previously published reports. This time

DoD took the recommendations seriously and the USAF “implemented extraordinary measures in their nuclear enterprise following two incidents in 2007 and 2008.” (Defense Science Board 2013).

### **Nuclear Enterprise**

The nuclear enterprise is defined by the 2011 Nuclear Matters Handbook as the community of people and organizations throughout the federal government responsible for maintaining U.S. nuclear weapon deterrence (Office of the Deputy Assistant to the Secretary of Defense 2011). To further elaborate on the term, the nuclear enterprise consists of the people, organizations, processes, procedures, and systems that are used to conduct, execute, and support nuclear operations and forces (U.S. Air Force Nuclear Task Force 2008).

The nuclear enterprise is important to maintain, because the United States’ strategic deterrence heavily depends on the nuclear triad and all of the agencies and organizations that help contribute to the mission. Although the nation’s dependence on nuclear weapons has been reduced, nuclear weapons still remain fundamental to deterrence. A high level of attention and resources are still necessary to keep this capability credible. With such a responsibility and destructive power, the DoD’s nuclear enterprise is always under the scrutiny of Congress and the public eye.

## **Leadership**

An effective leader creates inspiring visions and ideals to motivate his or her people. A leader also conveys to their subordinates how they contribute to the mission, why their work is important, and that they are valued people. In the past two decades senior leadership lost sight and the decisions they made have had the cumulative effect of jeopardizing the nuclear enterprise's deterrent capability. In the USAF, leaders failed to shift priorities, adjust policies, and maintain the resources needed for a potent nuclear effectiveness.

In the early 1990s, the decline in nuclear experienced leaders would begin to take its toll on the nuclear enterprise. Throughout the years the DoD did not identify the issue and eventually failed to groom the next generation of nuclear experienced leaders. For example, Air Force Nuclear Task Force stated that some key nuclear billets are not filled by personnel with nuclear backgrounds; therefore, the billets are filled by personnel with no prior nuclear experience (U.S. Air Force Nuclear Task Force 2008). As the “new” generation of senior leaders, both civilian and military, filled nuclear positions they often relied on legacy experience to be successful in the nuclear enterprise (Schlesinger, Carns, et al., DoD Nuclear Weapons Management Phase I: The AF's Nuclear Mission 2008). With the issue unnoticed and the focus on conventional missions, this atrophy of experience would continue to plague DoD for another two decades and become an

underlying factor for the numerous nuclear incidents. This issue highlights the need for USAF leaders to receive formal nuclear training; however, the nuclear mission and strategy are seldom taught in professional military education (PME). Nuclear experience is crucial for leaders to reduce the reliance on informal methods of learning and to help them make effective decisions. Without the nuclear experience or knowledge, senior leadership in the DoD and the nuclear enterprise cannot effectively convey the importance of the mission in the U.S. defense policy (Department of Defense 2014).

Recommendations to increase nuclear experience were made by several reports. One specific recommendation was that the USAF needs to formalize a career development plan for personnel in the nuclear enterprise and provide them with the depth and breadth of experience necessary to become effective leaders in the nuclear enterprise (U.S. Air Force Nuclear Task Force 2008). This recommendation was implemented and a review of Air Education and Training Command (AETC) courseware was accomplished. Additional nuclear courses were added to AETC's courseware and is now introduced earlier in enlisted and officers PME. Other classes on nuclear matters were created as well. For example, Nuclear 400 is a course offered by Air University's Counterproliferation Center (CPC). This is a two day course that teaches the internal workings of the nuclear enterprise to O6s, E9s, and General and Flag Officers (USAF Counterproliferation Center at The Air University 2013). Defense Threat Reduction

Agency (DTRA) also offers orientation courses in the nuclear enterprise. Their courses are open for any service member or civilian to attend. These are just two examples of the courses now offered to educate current and future leaders on the nuclear enterprise.

Another recommendation made was that the commander of AETC should conduct a review of all Air Force PME curriculum and expand education to include nuclear deterrence, strategy, and operational theory (Schlesinger, Carns, et al., DoD Nuclear Weapons Management Phase I: The AF's Nuclear Mission 2008). After this recommendation was made, Air University, HAF A1 (manpower, personnel, and services), and a panel of functional and major command representatives worked in conjunction to review the PME curriculum. A stair-stepped approach was taken to revamp the nuclear education system across the continuum of education from basic to advanced courses (U.S. Air Force Nuclear Task Force 2008). The Secretary of Defense's Task Force recommended all nuclear matter courses should be offered to all troops, regardless of rank or service. For example, several Major Commands (MAJCOMs) have created a nuclear course specific for their training needs. The United States Air Force in Europe (USAFE) has created Nuclear University, which trains technicians on USAFE storage and security system (WS3) vaults. Air University's CPC developed several nuclear courses for mid-level to upper-level leaders and supervisors involved in the nuclear mission. Air Force Space Command's 20th Air Force ICBM Center of

Excellence provides training specifically focused on the ICBM mission, which includes operations, maintenance, and security forces. All of these training initiatives are important, but they reside in separate MAJCOMs. This makes it difficult to allow cross pollination of training and to capitalize on any synergy within the nuclear enterprise.

The next issue identified as a leadership failure is the “say-do gap”. The “say-do gap” sends mixed messages to the troops who execute the mission on a daily basis. The Independent Review of the DoD Enterprise states senior leadership expresses that the nuclear mission is top priority and uniquely important, but the nuclear forces experience shortages in resources, have unqualified personnel, have inadequate facilities, and have funding shortages. It is difficult to inspire and lead from the front when the nuclear force hears one thing and perceives another. The “say-do gap” is reinforced with the nuclear modernization gap between the U.S. and other nuclear weapon states. The U.S. is stagnant with its nuclear programs, while Russia and China are advancing in their nuclear programs (Insinna and Parsons 2013).

A recommendation for leadership at all levels is to give the force full commitment to eliminate the “say-do gap” and increase communication (Department of Defense 2014). This means the leaders must take ownership and responsibility for their actions. Senior leaders must also consistently emphasize the vital contribution the nuclear mission makes to the U.S. strategic deterrence (U.S. Air Force Nuclear Task Force 2008). An

update to these recommendations is AFGSC's force improvement program (FIP), which was originally initiated for the ICBM community, but now extends to the bomber community as well. The FIP team is comprised of operations, maintenance, security forces, and mission support members from different MAJCOMs and AFGSC wings (Pampe 2014). The team conducts field surveys, leadership surveys, and collects inputs from the Airmen executing the day-to-day mission (Pampe 2014). Once the survey results have been assessed, a list of concerns and recommendations will be presented to AFGSC and numbered Air Force (NAF) commanders. Since the inception of the FIP, "it has evolved into a philosophy of continuous assessment and improvement that empowers Airmen who perform the nuclear mission and seeks to continue changing and improving the nuclear culture." (Air Force News Service 2014). One example of this bottom-up approach, FIP, at work is the ICBM community. The ICBM crewmember's initial assignment progression was to spend three years in the unit and then go to a career broadening tour, which most likely was not nuclear related. It was very unlikely that the crewmember would return back to the ICBM community. Post FIP, the plan calls for a "3+3" where the crewmember spends his or her first three years focusing on becoming a weapon expert in his or her primary job and then the next three years upgrading to instructor, evaluator, or flight commander. The FIP also identified a need for more mid-level officers in the missile units, so Assistant Director of Operations positions were

created to help manage the Airmen. Some other examples of FIP working for the Airmen are; updated tools and equipment for maintainers and cold weather gear and weapon improvements for security forces (Department of the Air Force 2015).

The third attribute for leadership failure is risk-aversion. The perception of relieving commanders as a result of an error or mistake found during a nuclear inspection or the lapse of judgement of a subordinate has created risk-averse leaders (Department of Defense 2014). The perception that single mistake can get a wing commander fired, has increased leadership's involvement in the inspection process to the point of micromanagement. The Independent Review of the DoD Nuclear Enterprise states that there are two main problems with leadership avoiding risk. First, when a leader is risk-averse he or she pushes the authority and decisions up the chain of command, thus delaying the decision-making process and ultimately undermining his or her own confidence. The second issue was creating programs to monitor and evaluate. This initiative undermines confidence, delays work, and devalues the qualification of the troops performing the mission (Department of Defense 2014). It may initially reduce the risk of errors or mistakes, but in the long run it is a drain on the already undermanned nuclear force. Each time there is an error, even the most minuscule, it requires an increase in monitoring or evaluating, which ultimately takes focus away from the mission (Department of Defense 2014). “Leaders’ focus on identifying root causes once a single

major problem emerges, but do not adequately consider and assess indicators and trends that provide a holistic view of the force.” (Department of Defense 2014). Risk-averse cultures tend to avoid risk until the problem becomes a major concern and by then it’s too late to address or fix. The unauthorized nuclear weapons movement and the classified parts shipment to Taiwan are two results of what risk-averse leaders cultivated (Spencer, Ludin and Nelson 2012).

A recommendation made by DoD is to reduce or eliminate risk-averse leadership styles. The Secretaries of the Armed Forces must provide guidance that the first priority for MAJCOM commanders is to empower those commanders under them, who execute the nuclear mission, and convey that there is no place for risk of criticism above the risk of the mission (Department of Defense 2014). For the MAJCOM level commanders, they must empower all levels of command to use expertise and judgement to successfully execute the mission within guidelines and directives (Department of Defense 2014). Secondly the USAF should not punish for mistakes, but instead allow the leader time to correct them. The DoD’s Internal Nuclear Enterprise Review recommended to stop firing leaders and let them learn from their mistakes and the mistakes of their organizations (Department of Defense 2014). This enforces the ideal that mistakes will happen and it does not necessarily mean a punishment will ensue. Lastly, to develop a culture of growth and learning, educate the force as to why leaders are relieved of command.

A result of risk-averse leaders is the demand for perfection in the troops' performance. The nuclear mission is unique and it needs to have high standards and perfection in most aspects, but what the troops perceive are leaders who demand micro-perfection, known as zero-defect. This zero-defect is expected in every aspect of their mission from operations to administration (Schlesinger, Carns, et al., DoD Nuclear Weapons Management Phase II: Review of the DoD Nuclear Mission 2008). Airmen were forced to focus on correcting the symptoms of failures, rather than identifying the root causes and implementing enduring solutions. Based on Admiral Donald's (the former Director of Navy Nuclear Propulsion and Deputy Administrator of National Nuclear Security Administration's Naval Reactors) investigation this practice led to informal technical order guidance and straying away from the formal steps and guidance (Schlesinger, Carns, et al., DoD Nuclear Weapons Management Phase I: The AF's Nuclear Mission 2008). The Independent Review of the DoD Nuclear Enterprise also observed just to reduce the risk of external criticism, that zero-defect is unnecessary (Department of Defense 2014). For example, in a weapons storage area there is a false assumption that a 30-year-old weapon will have zero cosmetic defects. To maintain a flawless weapon like it was new from the factory is not achievable (Defense Science Board 2011). The practice of perfection should be a goal, but it has become an unrealistic standard that the commander pushes their troops to meet (Department of Defense 2014). The USAF

expects perfection all of the time, which drives a culture of excessive preparation, even to the point where it detracts from the mission, undermines trust, inhibits learning, and erodes morale (Department of Defense 2014). This practice led the ICBM community to an unhealthy level of distrust.

The recommendations for leaders who expect 100 percent perfection all the time, is similar to the recommendations for the risk-averse leader. The Secretaries of the Armed Forces need to provide guidance, that a high priority for the commanders is to empower those who work for them, so that they can execute the nuclear mission effectively and efficiently with zero tolerance (Department of Defense 2014). If an error or mistake does occur the suggested action is not to punish the individual or unit, but instead correct it with additional training, hands-on supervision, or provide clearer guidance (Department of Defense 2014).

## **Culture**

Culture is comprised of beliefs and customs. It is a way of thinking, behaving, or working in an organization (Gibson, et al. 2012). Leadership fosters culture and can directly influence it as well (Gibson, et al. 2012). The nuclear enterprise failed to develop its culture into a thriving environment. It lacked experience, lost focus, fell short on accountability, and was conditioned to an eroding culture (Schlesinger, Carns, et al., DoD Nuclear Weapons Management Phase I: The AF's Nuclear Mission 2008).

During the Cold War, the Joint Staff was adequately staffed with experts on nuclear operations and nuclear system requirements. By the end of the Cold War, the nuclear enterprise experienced a rapid decline in mission focus, resources, experience, and accountability. Significant signs of decline began in 1991. Bombers and ICBMs were no longer on 24 hours a day and 7 days a week alert status. United States Air Force nuclear assets transferred from SAC to ACC. The B-1Bs converted from nuclear to conventional only. Finally the USAF bomber fleet and bases were reduced (United States Air Force 2008) . The USAF ICBM force went from six wings to three and the ICBM career field merged with space operations, thus diluting the nuclear experience pool even further. This atrophy of nuclear experts has gone beyond the missile and bomb wings. It has a global effect. United States European Command's nuclear planning staff was not a priority and it eventually withered to unacceptable levels (Schlesinger, Carns, et al., DoD Nuclear Weapons Management Phase II: Review of the DoD Nuclear Mission 2008).

Other Geographic Combatant Commanders' nuclear planning capabilities and experts have essentially been non-existent as well. At Joint Staff the nuclear experts are becoming extinct, which is a significant disadvantage when it comes to influencing new nuclear deterrent capabilities, decisions regarding force structure, and participation in operational nuclear planning process (Schlesinger, Carns, et al., DoD Nuclear Weapons Management Phase I: The AF's Nuclear Mission 2008). With the loss of the context of the

Cold War and the ongoing Global War on Terrorism, the resulting effect is a lack of nuclear experts. For example, a job requiring specific nuclear skills may have a person working in that billet with little to no nuclear experience. This person is not able to perform his or her duties and their job performance will likely impair or create inefficiencies in the organization (Dues 2011). As noted earlier in Chapter 1, it was a lack of experience that contributed the 2007 and 2008 incidents.

Career development was one of the recommendations made to foster a culture of experienced nuclear personnel and to retain them. To retain nuclear experienced personnel, the Schlesinger Report recommended to develop a reliable and accessible system to track nuclear experience across the USAF (Schlesinger, Carns, et al., DoD Nuclear Weapons Management Phase I: The AF's Nuclear Mission 2008). Several years later, after the recommendation was implemented, the Nuclear Enterprise Human Capital Committee was created and it is now known as the Nuclear Enterprise Action Committee (NEAC). Per HAF Mission Directive 1-60, the NEAC is chaired by HAF A10F (strategic deterrence and nuclear integration, functional authority) and in attendance are nuclear enterprise career functional managers, Air Force Personnel Center, MAJCOM representatives, HAF A1, and several other organizations. The NEAC convenes every six months to discuss strategy on strengthening manning and management of nuclear career fields (Department of the Air Force 2014). Outside of the meetings, NEAC continually

tracks human capital challenges, key nuclear billets, and emerging issues. It also ensures that all nuclear enterprise career fields remain healthy and effective. The former Chief of Staff for Strategic Deterrence and Nuclear Integration (HAF A10) stated:

We recently formalized our processes and policies for identifying, designating, and tracking Key Nuclear Billets (KNBs), select positions of responsibility within the nuclear enterprise that are vital to its health and sustainment. KNBs require defined levels of nuclear experience based on each specific position and are given the highest assignment priority. The program allows us to more effectively manage the assignment of qualified personnel to critical nuclear positions, and we rely on a periodic re-validation process to ensure KNBs are aligned to meet the constantly changing needs of the enterprise. (Department of the Air Force 2014).

During the Cold War years, the inspection process within the nuclear enterprise provided a steady reminder of how important the mission was and the special attention the mission attracted. The purpose of inspections are to ensure an organization and its people are complying with guidance, regulations, and instructions. The Independent Review of the DoD Nuclear Enterprise states “inspections are to contribute to the effectiveness and efficiency of the unit in maintaining daily readiness to perform its mission.” (Department of Defense 2014). As mistakes and incidents in the nuclear enterprise became more frequent and severe, so did the number of inspections. As a result inspections became the priority. After the 2007 and 2008 incidents, inspections increased to ensure the Airmen were following guidelines and to prevent another incident. The inspections increased so much that it affected leadership style, mission focus, and troops’

morale. The non-stop inspections turned training exercises into opportunities for inspections, thus making training and inspections counterproductive (Defense Science Board 2011). Any misstep during the inspection was met with increasing inspection frequency creating a waterfall of ineffectiveness “where an already undermanned and under-experienced unit is over-worked, over-evaluated, over-drilled, over-observed, and under-trained—all at the expense of genuine proficiency and mission readiness” (Department of Defense 2014). The “inspection culture” became the focus for the USAF and adversely affected the commander’s role, responsibility, authority, and accountability (Department of Defense 2014). Commanders trained to the inspection and not the mission, for fear of failing an inspection, which meant the unit was not ready to execute the mission. For commanders, the possibility of getting fired hinged on the inspection results. The crew force, perceived scoring 100 percent on exams would increase their chances of promotion and broaden their career. Anything less than 100 percent meant the operator was not the best in his or her career field. Being pressured to score a 100 percent on every exam was one of the reasons why the crew force felt compelled to cheat on exams (Department of Defense 2014).

In order to break the fear of being fired from inspections, the Secretary of Defense’s Task Force recommended that the senior leaders must convey that inspections

are to be used as a teaching tool to identify problems and fix them - not as an excuse to fire leaders (Department of Defense 2014).

To emphasize the importance and the number of inspections conducted, the Independent Assessment of the Air Force Enterprise listed ten different inspections and staff assisted visits (SAVs). Per Air Force Instruction (AFI) 91-121, nuclear staff assisted visit (NSAV) program, is to assist nuclear tasked units, on a non-attribution basis, in maintaining its surety program. It is not an inspection and it is not intended to prepare a unit to pass a nuclear surety inspection (NSI); however, NSAVs somehow evolved into inspections, but without the formal grade (Defense Science Board 2011). The Secretary of Defense's Task Force recommended that the USAF overhaul its inspection process to standardize it and to ensure the NSAV program was being used as intended (Schlesinger, Carns, et al., DoD Nuclear Weapons Management Phase I: The AF's Nuclear Mission 2008).

The sheer number of inspections for both the USN and USAF was staggering. To illustrate how inspections became the mission the Independent Review of the DoD Nuclear Enterprise describes how the “inspection culture” has taken over. The missile maintenance unit at the Strategic Weapons Facility Pacific, Bangor had ongoing inspections for five consecutive weeks. The maintenance unit recorded over 100 inspections conducted by outside agencies in within one year. The 91st Missile Wing at

Minot AFB had a similar experience in 2013. The missile wing had a total of 32 internal and external inspections within a 100 day period. During that same year a total of 293 leadership days occurred (senior leadership visits to the missile wing), which did not include an additional 59 ‘visits’ to the wing, ranging from Congressional delegates (Department of Defense 2014). While both USN and USAF had frequent inspections the USAF spent significantly more time preparing for inspections, thus reinforcing the culture of inspections over mission.

Table 1 illustrates the workload and impact the visits and inspections had on Minot AFB, which has a two nuclear wings.

**Table 1: Days of Special Effort at Minot AFB**

Year	High Level of Special Effort- Major Inspection, Congressional Visit	Significant Level of Special Effort- Major Exercise Higher Headquarter Visit	Medium Level of Special Effort	Total White Space Including Weekends & Holidays
2008	190*	98	72	69
2009	204	192	73	65
2010 thru Aug	168	114	75	25

\* For all categories, there are multiple activities, sometimes three or four on many of the days. (Source: Defense Science Board, 2011)

Inspections were so constant that the operational and logistics units did not have enough time nor resources to correct previous write-ups before the next round of

inspections. The non-stop inspections coupled with exercises had a negative impact on nuclear bomb wings. The nuclear bomb wings were not able to sustain the maintenance and inspection schedule, thus decreasing mission readiness (Department of Defense 2014).

To reduce the number of inspections conducted throughout the year, a recommendation was made to consolidate inspections and to combine inspection teams (Schlesinger, Carns, et al., DoD Nuclear Weapons Management Phase II: Review of the DoD Nuclear Mission 2008). The inspection program needs to focus more on areas where issues persist (quality) and not on how many it can conduct (quantity) (Defense Science Board 2011). Another recommendation was to have the Joint Staff review DTRA's inspections. Defense Threat Reduction agency conducts them on behalf of the Chairman of the Joint Chiefs of Staff and the services. A review should be conducted to ensure DTRA is providing the Chairman the appropriate information and if all of the inspections are necessary (Department of Defense 2014). During a brief to the Senate Armed Service Committee in 2015, HAF A10 stated it has “initiated efforts to refine the scope and methodology of our nuclear inspections process, with the goal of reducing duplicative structures, providing wings with critical “white space” to focus on successful performance of the mission in lieu of constant preparation for inspections...” (Department of the Air Force 2015).

Another issue identified with inspections was that the inspection process was not standardized and inspectors were not appropriately trained. This led to different practices, lack of standardization, and unclear evaluation criteria (Schlesinger, Carns, et al., DoD Nuclear Weapons Management Phase I: The AF's Nuclear Mission 2008). Both DTRA and Air Force Inspection Agency stated that nuclear inspections standards were not well understood, nor were they applied consistently amongst the major commands (Schlesinger, Carns, et al., DoD Nuclear Weapons Management Phase II: Review of the DoD Nuclear Mission 2008). With the uncertainty of what to expect during inspections, commanders often put a higher emphasis on them and additional resources into preparing for them.

Several of the reports reviewed recommended to standardize inspections. One of the methods proposed to standardize was to strengthen the relationship with DTRA by closing gaps in NSI methodology (Schlesinger, Carns, et al., DoD Nuclear Weapons Management Phase II: Review of the DoD Nuclear Mission 2008). An update to this recommendation is that the AFGSC continually improves and implements its Air Force Inspection System (AFIS) and integrates inspections with that system (Department of the Air Force 2015). The AFIS “relies on inspections by the Inspector General (IG) and assessments and evaluations by functional area managers to ensure that all wings comply with Air Force Standards...” (Camm, et al. 2013).

Another issue within the nuclear enterprise culture is the Personnel Reliability Program (PRP). The PRP is the commander's program that identifies reliability of personnel performing nuclear related duties. According to DoD's regulation 5210.42 and Air Force Manual 10-3902, the purpose of PRP is "to ensure that each person selected and retained for performing duties associated with nuclear weapons or nuclear command and control systems and equipment is emotionally stable and physically capable, and has demonstrated reliability and professional capability." (Department of Air Force 2010). Since PRP involves nuclear personnel and duties, it gets inspected. Inspectors focused intensely on reviewing PRP medical records (Department of Defense 2014). The pressure of ensuring the records are perfect with limited resources puts an unnecessary strain on the medical community (Department of Defense 2014). For instance, a Competent Medical Authority (CMA) supports several different geographically separated nuclear activities. The CMA verbally established a policy to accomplish an end-to-end record review of each newly assigned individual, even if the individual was PRP certified at their previous assignment. With only one CMA conducting the reviews, the individual's PRP status could be delayed by several weeks. The amount of time the individual is not PRP certified is time he or she cannot accomplish their nuclear related duties, which puts the burden on the unit. To add to this tedious process, the CMA must place a cover sheet on the outside of the medical folder annotating any past issues found, no matter how far in the past. This extra precaution is taken

to avoid criticism by the inspector, but that is not the intent or a requirement in the DoD and Air Force PRP directive (Department of Defense 2014).

With the onslaught of inspections, additional informal PRP practices developed over time, complicating and rendering the program burdensome. This ultimately has a negative impact on the nuclear qualified personnel available to complete the mission. For example, a unit may be manned at 80 percent. When individuals are seen by an off-base facility they are automatically suspended from nuclear duties regardless of the type of appointment. After the appointment is completed, the individuals must be seen by on-base medical personnel. The individual will be evaluated by the medical team to determine if he or she will remain suspended or be reinstated for duty. Cumulatively, the individuals who are PRP suspended could account for 10 percent of unit manning (for a unit which is already undermanned). For example, security forces and maintenance will have to work extended hours to cover the missed shifts. This approach does not meet DoD guidance, because automatic suspension should not occur. The automatic suspension is a result of zero-risk practice in the USAF (Defense Science Board 2011). The zero-risk approach develops a culture of distrust, and creates unnecessary work for medical staff, inspectors, and the unit.

Several reports recommended that the Secretary of the Air Force (SECAF), Chief of Staff of the Air Force (CSAF), and commanders at all levels need to provide clear guidance for the PRP. They must emphasize PRP is a commander's program used to ensure individuals are reliable, safe, and capable of accomplishing the mission (Defense

Science Board 2011). In 2014, the PRP changed to put more trust back in leadership. The process has been simplified and the individual no longer needs to see the CMA. The individual still needs to notify the appropriate personnel for off-base appointments, but now the commanding officer has the flexibility to ask the appropriate questions to determine if the individual is fit for duty (Mayfield 2014). This puts the trust back into the commander.

To help reduce manpower in the clinics and eradicate an overly bureaucratic program it was recommended to eliminate the automatic suspension for off-base visits (Department of Defense 2014). To accomplish this, a recommendation was made to change the PRP re-certification process. The look-back period should be limited to the last certification unless there is a specific reason for the CMA to look back further (Defense Science Board 2011). Another recommendation was to keep the individual PRP certified if they were PRP certified at their previous assignment. This recommendation benefits the gaining unit because the amount of time the individual is not available for duty is drastically reduced. The Air Force PRP manual was re-written in 2014 to implement these recommendations; however, the practice of automatic suspension still exists, because some commanders have always done it that way (Department of Defense 2014).

## **Organization**

During the Cold War, SAC was the sole command which responsible for all ICBMs and nuclear capable bombers. Strategic Air Command's mission was to deter nuclear conflict by providing a capable and credible nuclear force (Schlesinger, Carns, et al., DoD Nuclear Weapons Management Phase I: The AF's Nuclear Mission 2008). When SAC dissolved in 1992, there was no single organization in the USAF who owned the nuclear mission. Nuclear bombers were under ACC and ICBMs were under AFSPC. Readiness, performance, and inspections varied between the two MAJCOMs. This 'new' structure was not optimized to provide a credible nuclear deterrent. The commitment needed to sustain the USAF nuclear enterprise decayed in vitality, readiness, and resources (Schlesinger, Carns, et al., DoD Nuclear Weapons Management Phase I: The AF's Nuclear Mission 2008).

Several reform reports recommended that one single organization in the USAF needs to own the nuclear mission. This single organization would also be responsible for providing nuclear forces to the combatant commanders. This single command would create a synergistic effort for the USAF. The recommendation was taken to heart and in 2009, AFGSC was activated and inherited all USAF responsibilities related to nuclear operations. The newly established MAJCOM would streamline the USAF's nuclear enterprise to train, organize, and equip the nuclear bomber and ICBM forces. In addition

to streamlining the nuclear forces, AFGSC provides a clear chain of command for all USAF nuclear units (Air Force Global Strike Command 2016). Initially the AFGSC commander was a three star general. This posed a problem since the majority of other MAJCOM commanders were four star generals. This difference in rank was identified as an issue. In DoD's nuclear enterprise review, it was recommended that the AFGSC commander should be a four-star general (Department of Defense 2014). This recommendation would benefit the nuclear enterprise because it reinforces the importance and priority of the nuclear mission (U.S. Air Force 2014). In 2015, the command billet for AFGSC was changed to a four-star.

Resource limitation was an issue in the nuclear enterprise. For example, Eighth Air Force, a NAF, was ineptly manned to support the global strike missions. Under ACC in 1992, responsibilities of the Eighth Air Force included long-range nuclear and conventional capable bombers, Air Force intelligence, surveillance, and reconnaissance airframes, Air Force Cyber Command, and intelligence organizations. Now under AFGSC, Eighth Air Force retains the long-range bomber assets while ACC retains control of the other airframes and organizations (Schlesinger, Carns, et al., DoD Nuclear Weapons Management Phase I: The AF's Nuclear Mission 2008). Air Force Space Command also had its challenges within the ICBM crew force. The demand for entry-level officers at the missile wings was high; however, the demand for mid-level officers

was low. That equates to after a four year tour, the missile operators could not remain in their current career field, so they went to space operations. Once the missile operator went to space operations it was rare for them to return back to the missile operations. Space operations was expanding and there were more career and promotion opportunities. As a pure missile operator, promotion and career broadening opportunities were limited (Schlesinger, Carns, et al., DoD Nuclear Weapons Management Phase I: The AF's Nuclear Mission 2008). The loss of skilled nuclear missile operators eventually left a shortfall in mid and senior level positions.

It was recommended that the USAF establish a new organization that oversees nuclear issues and manages nuclear leaders. In 2008, HAF A10 was established to provide the necessary focus for the USAF's nuclear enterprise. Headquarters Air Force A10 directly reports to the CSAF and is responsible for policy oversight and integration of all USAF nuclear enterprise activity and issues (Center for Strategic and International Studies 2008). One of the other responsibilities HAF A10 has is validating, adjudicating, approving, and publishing the KNB list (see HAFMD 1-60 for additional responsibilities).

Another organizational issue that burdens the nuclear enterprise is the limited resources they have to execute the nuclear mission. Plagued with budget cuts and sequestration, it is difficult to keep units fully manned to sustainable operations. For

example, one bomb wing reported its crew chief manning was at 67 percent of its allocated positions, which means there are not enough crew chiefs to support the training missions (Schlesinger, Carns, et al., DoD Nuclear Weapons Management Phase I: The AF's Nuclear Mission 2008). The result of the shortfall was that approximately 20 percent of the training sorties were not flown, thus limiting aircrew proficiency and ultimately reducing combat readiness (Schlesinger, Carns, et al., DoD Nuclear Weapons Management Phase I: The AF's Nuclear Mission 2008). Another resource limitation is finding parts for the aging nuclear systems. The average age for the ICBM is approximately 41 years, 50 years for the B-52, 14 years for the B-2, and 28 years for the Ohio-class submarine (Spring 2011). Finding parts to fix these systems is becoming nearly impossible, because the systems have outlasted the suppliers.

To help solve the manning issue, recommendations were made for HAF A1 to define nuclear-critical billets and identify critical nuclear positions as “must fill” on the unit manning documents (Schlesinger, Carns, et al., DoD Nuclear Weapons Management Phase I: The AF's Nuclear Mission 2008). This recommendation was implemented and it is now the responsibility of HAF A10, as previously discussed. Another manning recommendation made in the Schlesinger report was simply to end strength drawdowns of the nuclear force. Currently house lawmakers are advocating to add over 20,000 more troops to the military force. The bill has made it to the first draft of the annual defense

authorization bill and looks promising (Shane III 2016). To help sustain the triad fleet and its components, the supporting equipment should be identified, correctly inventoried, and sustained until the end of life of the weapon system (Department of Defense 2014). It was recommended that the part supply process should develop a proactive supply and contract management systems for out-of-production parts (Department of Defense 2014). To help remedy the shortage of supplies, the Defense Logistics Agency (DLA) demonstrated its commitment to the nuclear mission by signing a memorandum of agreement with U.S. Strategic Command (USSTRATCOM). Defense Logistics Agency has a dedicated weapon system program manager and a weapon system support manager, which basically help manage the supply chain for the nuclear triad (Moore 2015).

## **Training**

With the emphasis on the conventional mission, nuclear training and education has diminished. The lack of training is more noticeable at the units that have dual-capable aircraft (Schlesinger, Carns, et al., DoD Nuclear Weapons Management Phase I: The AF's Nuclear Mission 2008). Also nuclear training events at formal training courses were reduced in order to increase conventional training (U.S. Air Force Nuclear Task Force 2008). For example, at the B-52 formal training unit their syllabus for new B-52 crew members only included one flight simulator and a sortie devoted to the nuclear mission.

The Independent Review of the DoD Nuclear Enterprise recommended that senior leaders review the importance of conventional and nuclear missions and adjust priority as needed (Department of Defense 2014). The review was accomplished and the DoD decided to consolidate and integrate five guidance documents into one strategic directive called Guidance for Employment of the Force (GEF). The GEF provides commanders the guidance for security cooperation, contingency planning, global posture, global force management, and nuclear weapon planning (Sweeney 2015). The GEF also allows the SECDEF and the Chairman of the Joint Chiefs of Staff (CJCS) to use the assigned forces in support of combatant commanders to accomplish the mission and to allocate forces (Air Force Global Strike Command 2014).

If additional training opportunities are added, leaders must ensure it is quality training. In the Welch and Harvey Report, Sailors and Airmen were interviewed and asked about the quality of initial training they received. Nearly all of them stated it felt like the training units are focused on throughput and not on quality (Department of Defense 2014). Nuclear technicians must complete 3-12 months of training and certification before they can actually assist with nuclear operations in their units. Personnel assigned on a four year tour can potentially wait up to 20 months before entering training because of the lack of instructors, aging equipment, and facility limitations. All of these factors cause a training backlog (Department of Defense 2014).

A recommendation suggested the USN and USAF should require a hands-on demonstration of skills and incorporate heavy computer-based training and evaluations before graduating to mitigate the hasty throughput and to emphasize quality (Department of Defense 2014).

### **III. Data Collection and Methodology**

*“To know your future you must know the past.”*

*-George Santayana*

#### **Chapter Overview**

To analyze and synthesize the reports, a mixed method approach using a case study and critical success factors (CSFs) are used. While conducting the case study, it was clear in some of the reports that the recommendations were separated into four categories: leadership, culture, organization, and training. For some of the other reports where it was not as clear, key words were used to help categorize the recommendations. Within the categories the recommendations are analyzed even further for similarities to start consolidating like recommendations. This decreased the overall number of recommendations. Once the recommendation was verified, the CSF methodology was applied to its implementation. The CSF is part of a five step process that is necessary to successfully achieve objectives within an organization. Once the implementation is successful, key performance indicators (KPIs) should be used to continually assess the objectives being measured.

#### **Data Collection**

Data collected for this research began with searching for nuclear reform recommendations. Initially peer-reviewed articles, Congressional hearings, and reports

from the entire nuclear enterprise were being collected to find recommendations and programs implemented. Over one hundred documents were accumulated. These were narrowed and the focus shifted to the DoD nuclear enterprise reports from 2008 to 2014. Each report was studied for trends in issues and recommendations. In the nuclear enterprise and written in an outline format. The recommendations were then transcribed to an excel spreadsheet for further analysis. As for the articles and hearing transcripts collected, they were referenced to gather additional information on recommendations. They were used to validate and update the implementations. Additional assistance and information was gathered from Headquarters Air Force (HAF) A10, Office of the Assistant Secretary of Defense, OSD CAPE, and Air Force Global Strike Command (AFGSC).

### **Case Study**

A case study is “qualitative research in which in-depth data are gathered relative to a single individual, program, or event for the purpose of learning more about an unknown or poorly understood situation” for a defined period of time (Leedy and Ormrod 2013). The reports published from 2008 to 2014 were in response to the 2007 and 2008 incidents. These reports contain the most current nuclear reform issues and recommendations published. The reports were analyzed to understand what the key issues

were, what recommendations were made, and which recommendations were implemented.

The data for this paper was broad in terms of the number and types of recommendations, so a ‘sifting’ approach was used. Most of the report recommendations were entered, excluding unit level and below recommendations since they are not in the scope of this research, into a spreadsheet. The process to categorize the recommendations occurred as the recommendations were entered into the spreadsheet. Leadership, culture, organization, and training are the categories the recommendations were grouped into.

### ***Categories***

To organize the recommendations into the following categories, several key words were identified using the reform reports.

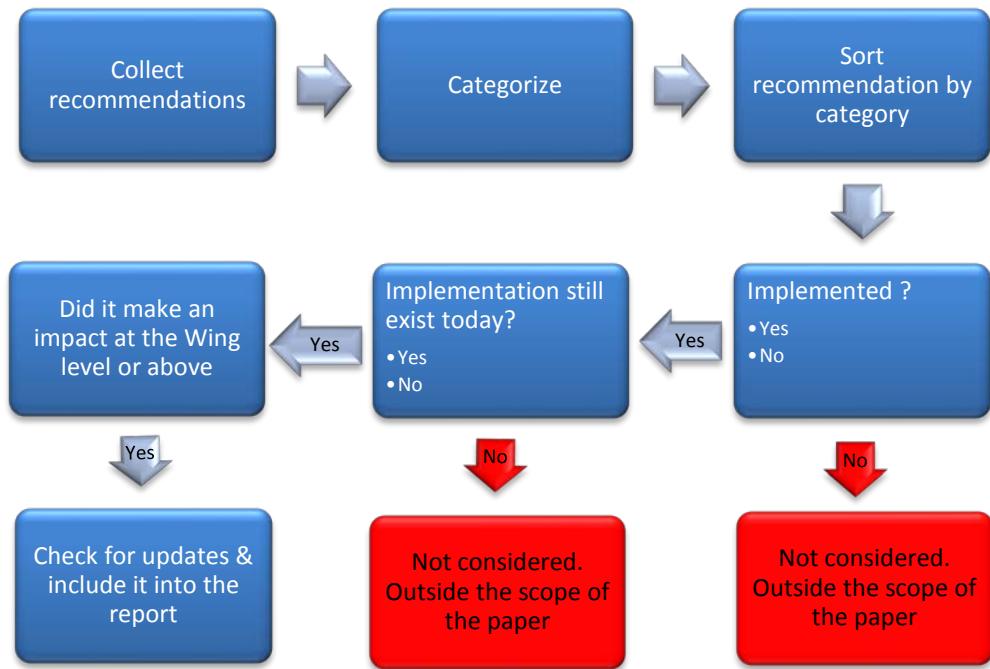
1. Leadership:
  - a. Key words: leaders, leadership, communicate, commitment, leadership development, and commanders empower
2. Culture:
  - a. Key words: culture, inspection, officer or enlisted career development, trust, zero-defect, perfection, and personal reliability program
3. Organization:
  - a. Key words: organization, resources, personnel, equipment, organizational change, need for an organization, key nuclear billets, must-fill nuclear positions, and critical nuclear positions

#### 4. Training:

- a. Key words: training, education, professional military education, quality training, robust training, and focus on mission

A comparison of the data was then accomplished to determine which recommendations were the most common amongst the reports. Another spreadsheet was developed and it was further divided from categories into subcategories. For example, leadership (L) was further defined as leadership commitment (L1), leadership development (L2) and so on (Appendix G). Some recommendations did not ‘naturally’ fall into one of the four categories, so some interpretation was necessary. Meanwhile, other recommendations fell into more than one category, so they were placed in all applicable categories.

An additional search was necessary to validate the implementation is still current. If the recommendation was not implemented then it was removed from the category. The remaining implemented recommendations were then checked for validity and updates. The last ‘sift’ to narrow the scope, was the implementation had to impact the wing level and above. Implementations at the unit level were not reviewed, because they were outside the scope of the paper.



**Figure 1: Research Paper Recommendation Selection Process**

### Critical Success Factors

According to Bullen and Rockart, critical success factors (CSFs) are “the limited number of areas in which satisfactory results will ensure successful competitive performance for the individual, department or organization. Critical success factors are the few key areas where ‘things must go right’ for the business to flourish and for the manager’s goals to be attained.” (Bullen and Rockart 1981). Another way to explain this statement is that CSFs describe areas in which an organization must perform extremely well in order to succeed. Critical success factor is the chosen method used to help answer

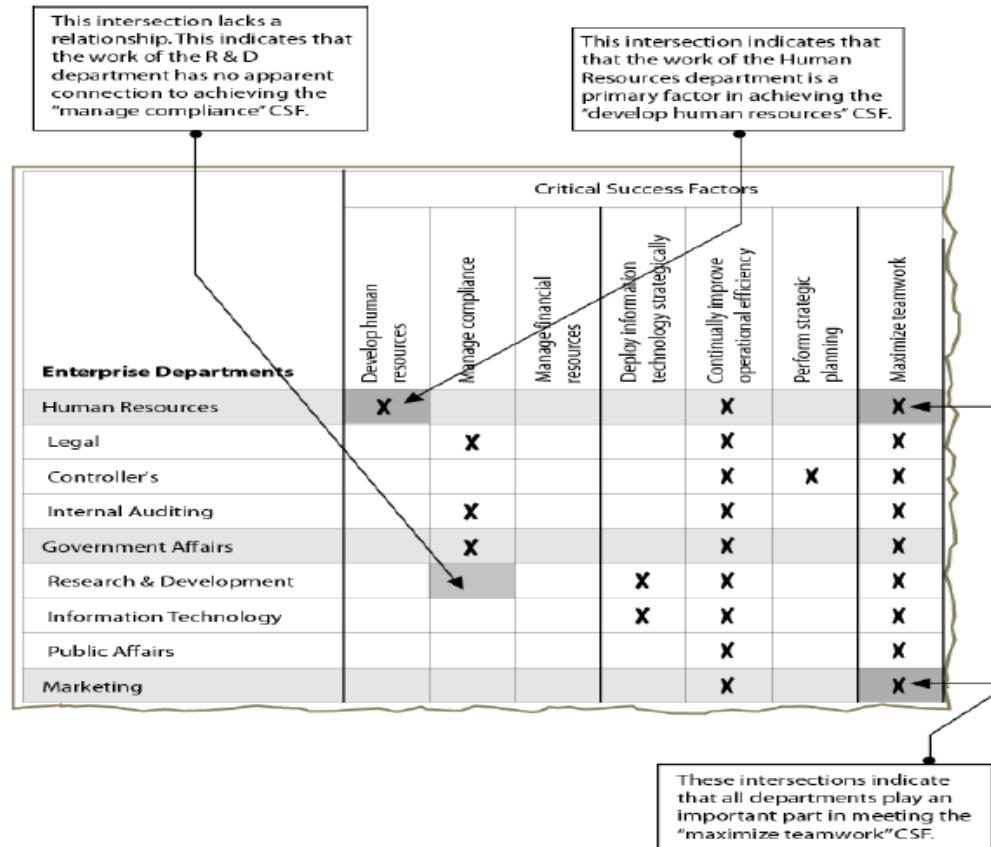
the problem statement. Applying the CSFs will “validate and ensure alignment with the direction and intent of the organization can enhance any decision, initiative, effort, or process.” (Caralli 2004).



**Figure 2: Caralli's Five-Step CSF Method; Source Caralli, 2004**

Bullen and Rockart introduced a two-phased interview-method that begins with an executive's goals and the underlying CSFs, followed by developing CSF measures. Rich Caralli, former Carnegie Mellon University instructor, suggested a five-step process in addition to the two-phased method (Caralli 2004). In Caralli's five-step method, the first three steps are integral, because they contribute to the organization's mission and objectives. The mission is the overarching vision of the organization. The objectives support the mission with smaller attainable goals. The first step in the process is to define the objectives. If the objectives are not already established, then they are developed from interviews with the senior leaders who can influence or help develop the goals and objectives (Gates 2010). As the interviews are being conducted documents and questionnaires are being reviewed at the same time. To elaborate more, the document review can include performance metrics, organizations' short-term or long-term plan,

existing CSFs, or CSFs of peer organizations (Caralli 2004). The purpose of the third step is to “categorize and analyze the raw data so it can be used to derive CSFs.” (Caralli 2004). One way to analyze the data is to create activity statements from interviews and document reviews. The activity statements reflect the senior leader’s understanding of what needs to occur for success. Once the activity statements are defined the supporting themes are developed, which becomes the foundation for CSFs. At this point of the process the previous three steps materialize into CSFs. The CSFs are kept short and concise, otherwise they will lose their meaning and focus (Caralli 2004). The purpose of CSFs is to pinpoint the activities that are the most important to senior leaders in order to achieve the mission. Also when deriving CSFs see if two or more can be combined. This will add more detail and it will reduce the number of CSFs. If there are too many CSFs, then it becomes difficult to track or focus on what really matters. Finally, the last step in the process is to analyze CSFs. Since the CSFs are a key element in the success of the organization, this step is crucial. To ensure the CSFs are correctly identified, they are compared to the organization’s initiatives using affinity analysis. Affinity analysis is a method used to study the similarities between two items to understand the relationships and draw conclusions (Caralli 2004). This analysis is the reason why CSFs are so powerful.

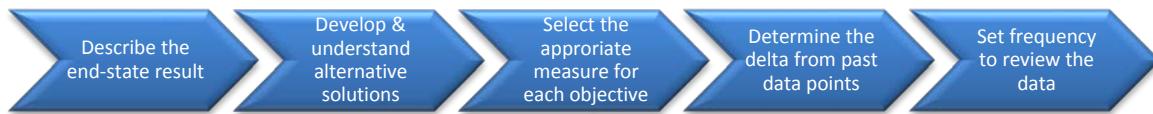


**Figure 3: Affinity Analysis Example; Source Caralli, 2004**

Referencing Figure 3, the enterprise departments determine if they contribute to the CSFs. Identifying these relationships provides the departments a starting point to define their goals in support of the CSFs (Caralli 2004).

Critical success factors are the foundation and structure that an organization must accomplish well to be successful. Once the CSFs have been determined, an organization must know how it is performing in relation to those factors. This is accomplished by

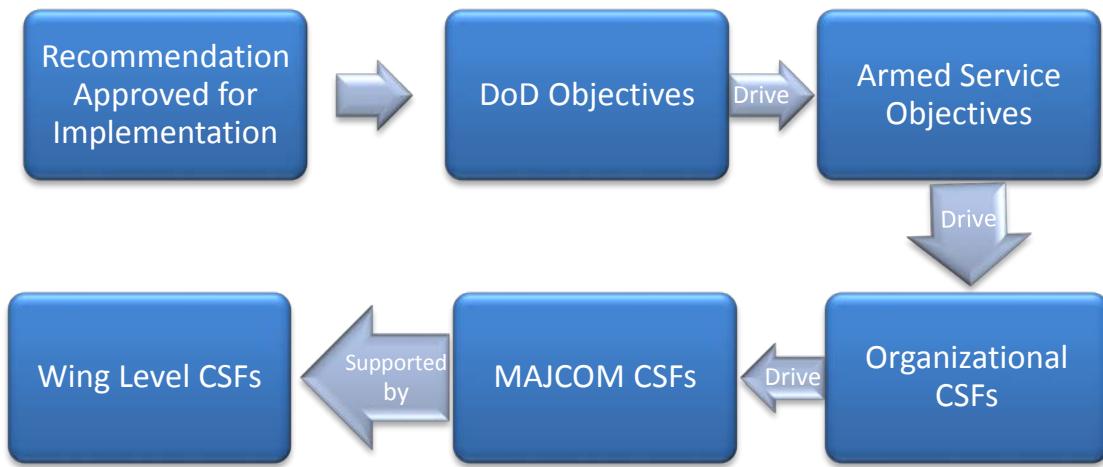
using CSFs to develop key performance indicators (KPIs). Key performance indicators are metrics, both quantitative and qualitative, which illustrate how well an organization is performing against CSFs (Stapenhurst 2009). There are two levels of KPIs: strategic and operational. Strategic KPIs are measurements that use a top down approach and operational KPIs use a bottom up approach. For this research paper the strategic level is used.



**Figure 4: KPI Development; Source Lorette, 2016**

There are five steps in developing KPIs (see Figure 4). The first step in the KPI process is to reference the organization's mission. The mission will set the expectation for success and lay the foundation to develop KPIs. Next, establish the metrics the organization will need to successfully accomplish the mission. These metrics need to be specific and applicable to the mission. An example is to reduce the number of ground vehicle safety accidents by 10 percent. The third step is to establish a data point to compare progress. The data point is necessary to develop the indicators for future accomplishments because it uses the data that already occurred or is occurring (Lorette

2016). Now that the appropriate measure is established, the KPI's percentage of change can be determined in each area. At this point, only look at the current numbers and not the future numbers. Then compare the numbers on different scales, i.e. from the previous year(s) or previous month(s). Lastly, set the frequency to review the KPIs. Each area will need to set their own frequency as the requirements will be different. This last step is critical, as it contributes to the success of the organization and it ensure the KPIs are updated as necessary.



**Figure 5: Critical Success Factor Hierarchy**

## Surveys

A survey is a tool used to collect data from a group or individuals (Alessi and Martin 2010). The purpose of using a survey for this paper is to gain the insights of senior

leaders and to assess if they identified certain reform efforts as successful or failures. The survey questions were based on the recommendations that were implemented and still operational. To evaluate validity and relevancy, a survey pre-test was completed before the survey went to the participants (Presser, et al. 2004). The pre-test consisted of sending the survey to peers with nuclear experience. The Likert scale was used for the participant's responses. The Likert scale was developed in 1932 for measuring attitudes of participants in a series of statements or questions, thus "tapping into their cognitive and affective components of attitudes." (McLeod 2008). The Likert scale is based on a five point continuum: strongly agree (2pts), agree (1pt), disagree (-1pt), strongly disagree (-2pts), and unknown (0pts) (McLeod 2008).

The survey assessed the senior leaders' (O-5 to O-10 and civilian equivalents) perception in each of the armed services to see if there was a consensus that can be considered a standard. The surveys are completely voluntary and anonymous. The data will be compared with AFGSC's FIP interview results to validate the perceptions of nuclear reform recommendations.

## IV. Analysis and Results

*“The optimist thinks this is the best of all possible worlds. The pessimist fears it is true.”*

*-J. Robert Oppenheimer*

### Chapter Overview

This chapter will step through the process from identifying an issue to implementing KPIs. First, it will step through how the decision is made to implement a recommendation. Then the five step process of CSFs and KPIs is discussed in detail using the stand up of AFGSC. Air Force Global Strike command is used as an example, because there is enough unclassified data to use for this explanation. The second half of this chapter will discuss the results of this research paper’s survey. As this chapter steps through the process, the investigative questions in Chapter 1 will be answered. As a review the investigative questions are listed here:

- 1) What process is used to get a recommendation implemented?
- 2) How does the nuclear enterprise define success?
- 3) How are implementations assessed once they are sustained?

### Decision Making Process: (Investigative Question 1)

Following the 2006 classified component shipment to Taiwan and the 2007 unauthorized movement of nuclear warheads, the SECDEF requested James Schlesinger, to lead a task force to conduct an assessment on the USAF’s nuclear mission

(Schlesinger, Carns, et al., DoD Nuclear Weapons Management Phase I: The AF's Nuclear Mission 2008). In 2008, Schlesinger's report was released and one of the significant issues identified was a "lack of unity of command," because there was no single MAJCOM in the USAF that had 'ownership' of the nuclear mission (Schlesinger, Carns, et al., DoD Nuclear Weapons Management Phase I: The AF's Nuclear Mission 2008). At this point two MAJCOMs, ACC and AFSPC, owned the nuclear mission; however, it was not their primary focus. Schlesinger's Task Force made several recommendations from this observation, but the one that stood out was a need for a single MAJCOM to own the USAF's nuclear mission.

Schlesinger's Task Force then recommended a designation of AFSPC to Air Force Strategic Command (AFSTRAT). The mission of AFSTRAT would be aligned with the mission of USSTRATCOM and AFSTRAT would provide clear lines of authority and accountability (Schlesinger, Carns, et al., DoD Nuclear Weapons Management Phase I: The AF's Nuclear Mission 2008). Air Force Strategic Command never happened, but the takeaway from the recommendation was the need for one organization to oversee the nuclear mission. In response to the report's recommendation, two conferences were convened with senior leaders in attendance (Bleil 2009). The first meeting, a nuclear summit, was assembled a few days after Schlesinger's Report was

released. Less than a month later, at the 2008 CORONA Conference, USAF's top generals approved the recommendation for a new MAJCOM (U.S Air Force 2008).

The mission of this new MAJCOM, now known as AFGSC, is to focus on the nuclear and global strike mission. In the Roadmap for a New Command: Lessons from Strategic Air Command and Air Combat Command, the author had an interview with HAF A10 and quoted him stating “We didn’t all agree on how we would quantify that sense of urgency; but I think the Chief and the Secretary [of the Air Force], by everyone of their actions - gave a clear indication of where nuclear stood. And that helped normalize everyone having a common view of the sense of urgency.” (Bleil 2009). The official announcement for AFGSC was made in October 2008 and it was also released in Air Force’s nuclear roadmap titled Reinvigorating the Air Force Nuclear Enterprise. The roadmap mentions the USAF considered several other alternatives to reinvigorate the nuclear enterprise, but the stand up of AFGSC was ultimately chosen with the goal to “increase nuclear mission focus, by placing all ICBMs and nuclear-capable bombers into a single command.” (U.S. Air Force Nuclear Task Force 2008). On January 12, 2009 the USAF officially established AFGSC Provisional (P) at Bolling Air Force Base, Washington D.C. Air Force Global Strike Provisional had the responsibility to implement the SECAF’s Program Action Directive (PAD) and the Programming Plan (PPLAN).

## Critical Success Factor Method



**Figure 6: Caralli's Five-Step CSF Method; Source Caralli, 2004**

Once AFGSC (P) became operational, the staff could start defining their scope by using the PAD and PPLAN. According to AFI 10-501 the PAD is “a HAF document that provides strategic level guidance to HAF staff and MAJCOM commanders about how to achieve SECAF’s and CSAF’s directed objectives.” (United States Air Force 2015). The PAD requires detailed cross-MAJCOM planning and guidance to implement USAF programs (United States Air Force 2015). The PAD also has a broad scope that affects several organizations and consists of a basic plan and functional staff annexes, which provides the staff with specific guidance (United States Air Force 2015). Before the PAD is developed, data is collected and analyzed by the staff. Some of the data points are turned into action items. If the action items are critical to the success of AFGSC, these would be further refined as CSFs. Once the CSFs have been determined they will be analyzed. This is crucial for the success of AFGSC. The analysis involves comparing the CSFs to the PAD’s objectives. If the CSFs do not encompass the objectives then the probability of success is decreased (Caralli 2004).

The PPLAN is a detailed planning document used to implement the PAD. It is written below the HAF level and it is used to initiate and record major actions (United States Air Force 2015). The purpose of the PPLAN is to “define required actions and outlines the responsibilities for achieving a given program directive.” and to activate or deactivate a unit (United States Air Force 2015). See Figure 7 for an example of an action item in AFGSC’s PPLAN.

<p>PPlan Number: AFGSC PPlan 09-01</p> <p>Submitter: Shonk, David, R. Lt Col Org/Office Symbol: AFGSC(P) A3 E-Mail: david.shonk@afnrcr.af.mil DSN: 754-7694 Commercial: 202-404-7694</p> <p>Action Item Number: A3-101 Title: Establish AFGSC ICBM Ops Training Program Creation Date: 19 Feb 09 Suspense: 1 Oct 09 Action (Open/Close): Open Critical Milestone: 06 Milestone Date: 1 Nov 09</p> <p>Working Group Chair: Critchlow, Robert, Col Org/Office Symbol: AFGSC(P) A3/5 E-Mail: Robert.critchlow@afnrcr.af.mil DSN: 754-7570</p> <p>OPR: AFGSC (P) A3 OCRs: A5, AFSPC/A3T, AETC/A3Z</p> <p>Problem/Impact Statement: ICBM Operations training required for continued mission accomplishment. Establishment action ensures required uninterrupted training conducted during/after transfer from AFSPC to AFGSC.</p> <p>Required Action: Transfer all current AFSPC/A3T ICBM curricula and associated function to AFGSC. Ensure all AFGSC personnel are adequately trained to assume/continue the ICBM mission uninterrupted.</p>
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**Figure 7: PPLAN Action Item Example; Source AFGSC Programming Plan 09-01**

## **Program Action Directive (PAD)**

The PAD defines the mission statement and responsibilities. These responsibilities are broad enough to allow flexibility to execute the mission. The PAD also provides the guidance of how AFGSC will be implemented. Some examples of what the guidance provides are: how and which assets will be transferred from ACC and AFSPC to AFGSC, how AFGSC will organize its NAFs, which bases will be assigned to AFGSC, and what personnel will be allocated to support AFGSC. To ensure the stand up of AFGSC stays on schedule a milestone chart is provided in the PAD. This chart includes the action, the office who is responsible for it, the due date, and when the action was completed. The actions on this chart are considered CSFs, since they have to be completed before AFGSC is fully operational. These required actions are then separated by staff functions, both Air Staff and Assistant Secretary of the Air Force, to ensure each function knows its responsibility. The required actions also provide the supporting MAJCOMs guidance of how they will support AFGSC. Lastly, the PAD has an annex and appendixes that provides additional direction and specific guidance to help support the stand up of AFGSC.

## **Surveys**

The purpose of the following surveys was to get an insight from senior leaders and Airmen at operational units. Two surveys were used for this research. The first

survey, conducted in July 2016, references the issues and recommendations identified in chapter two. The second survey was accomplished in 2014 by AFGSC FIP Survey Analysis team.

Some of the survey questions were separated into two rank structures, O-5 to O-6 and O-7 to O-10. The purpose of separating the ranks was to get feedback on squadron, group, and wing level leadership (O-5 to O-6) and for senior leaders at NAF, MAJCOM, and Air Staff (O-7 to O-10).

### **Survey 1: (Investigative Question 2)**

Twenty surveys were sent out and 11 were completed for a 55 percent response rate. A total of twenty-six questions were asked to all of the participants. See Table 2 for demographics of the participants.

**Table 2: Survey 1 Demographics**

			RANK		Total Years in Nuclear Enterprise			
	USAF	USN	O-5 to O-6 or equivalent	O-7 to O-10	5-10	10-15	15-20	Over 20
%	90.9%	9.1%	27.3%	72.7%	18.2%	9.1%	9.1%	63.6%

The questions that reference the ranks of O-5 to O-10 have four bars displayed. The blue bars represent O-5 to O-6 and the yellow bars represent O-7 to O-10. The numbers in the graphs represent a scale from -2 to +2. The closer the responses are to +2,

the more likely they agree with the question. The closer the responses are to -2, the more likely they disagree with the question.

Strongly Agree = +2

Agree = +1

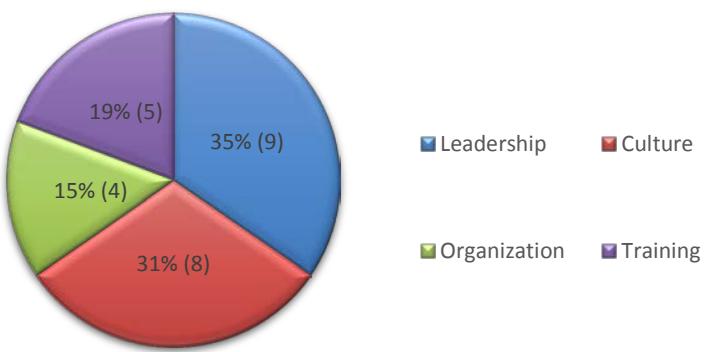
Neutral = 0

Disagree = -1

Strongly Disagree = -2

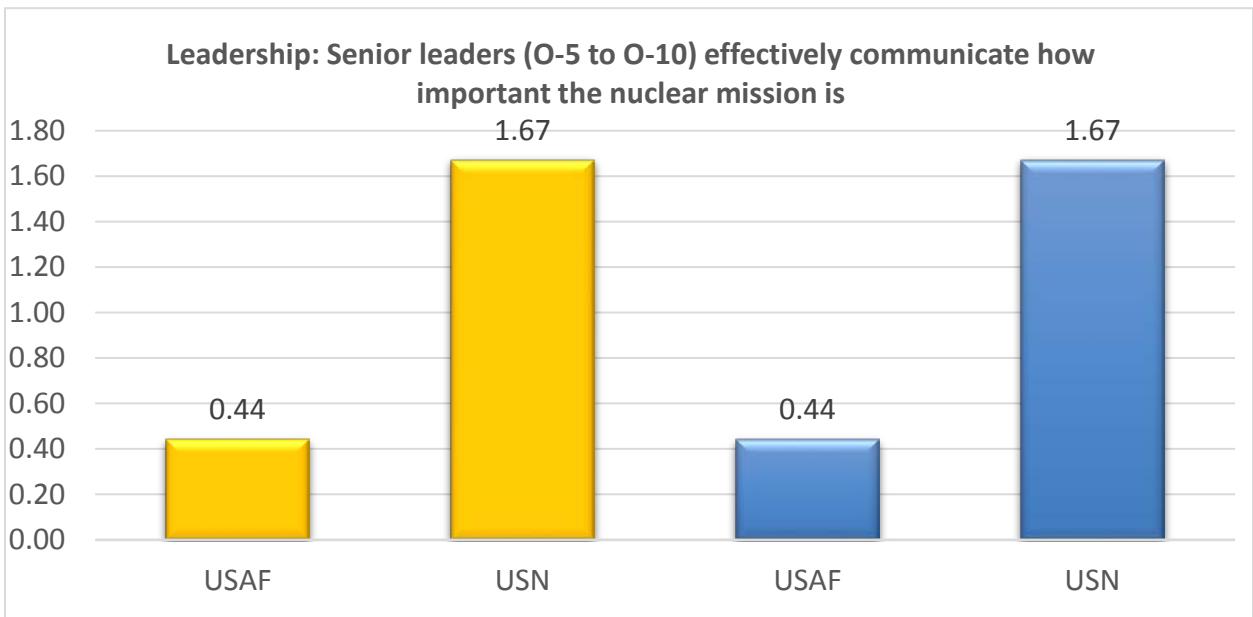
The survey was divided into the four categories pre-identified by the reform reports: leadership, culture, organization, and training. Figure 8 displays the number of questions asked in each category. Thirty-five percent of the survey questions were focused on leadership, since this category was identified as a significant factor that led to the erosion of the nuclear enterprise.

### Number of Questions per Category



**Figure 8: Ratio of Survey Questions**

## *Leadership*



**Figure 9: Leadership Question 7&8**

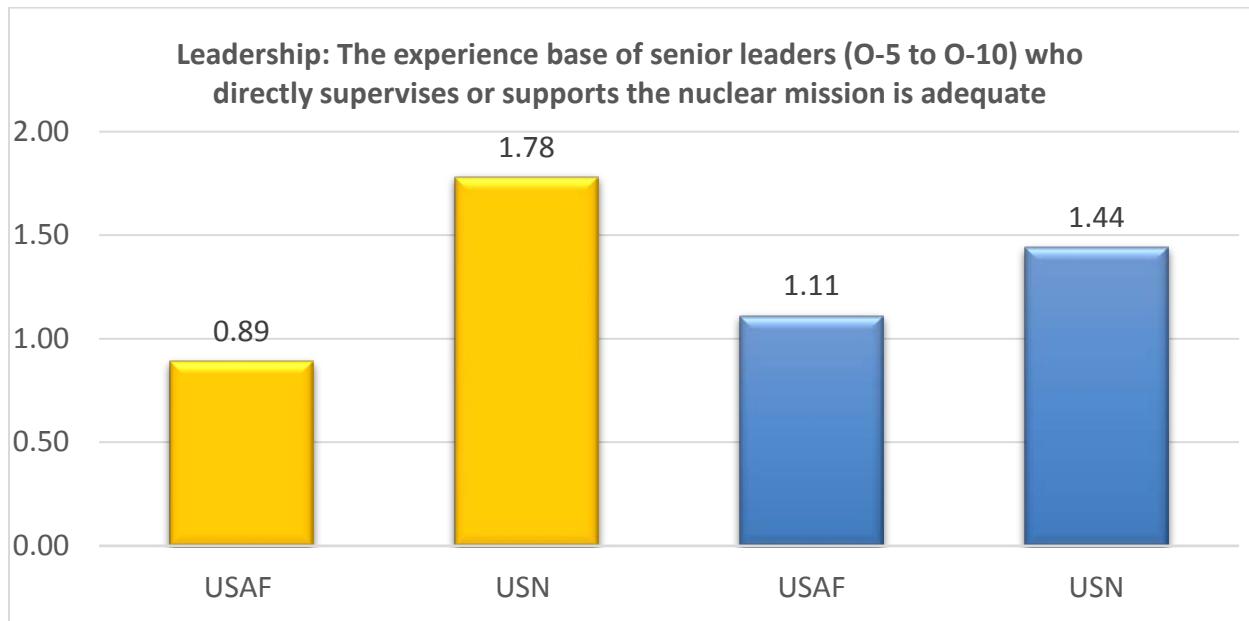
Leadership was doing a modest job of communicating the importance of the nuclear mission. This lack of communication eventually affected the morale of the troops supporting the nuclear enterprise. One of the common recommendations for this issue was for leaders to effectively communicate the message. Figure 9 asks how effective the communication is in the USAF and the USN. The results show the USN is more effective at communicating than the USAF. The following comments from the survey may help explain why.

“Then Navy clearly speaks with one voice and the CNO [Chief of Naval Operations] has publically stated the foundational nature of their deterrent force.”

“Outside of a small cadre of leaders directly involved in the nuclear enterprise, USAF leaders tend to ignore this mission set. My sense is that USN leaders are better at this than the USAF.”

“In general, there has been an improvement in senior USAF leaders discussing the importance of the nuclear mission, but it is intermittent.”

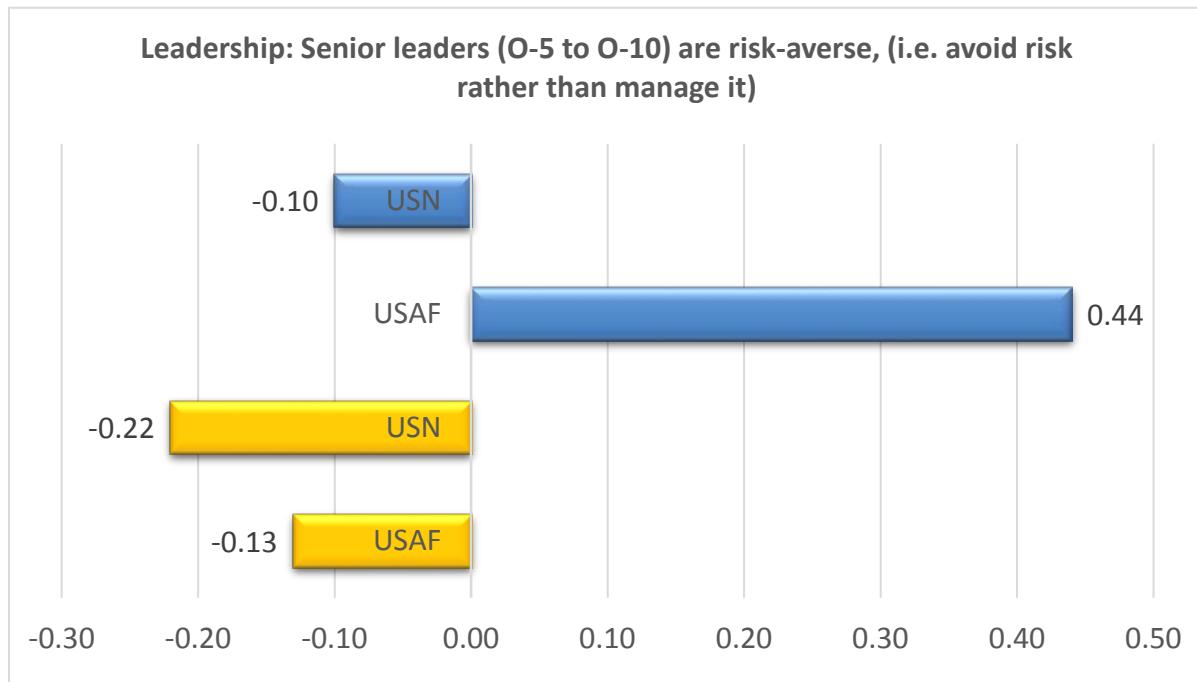
To elaborate more on the first comment, the USN has a Strategic Systems Program (SSP) which only has the nuclear mission. The Director of SSP is responsible for all of USN’s nuclear weapons and associated systems, with no conventional systems. The single mission may contribute to why the USN communicates more effectively about the nuclear mission.



**Figure 10: Leadership Question 9&10**

Another concern identified by the reform reports, is the lack of nuclear experienced leaders. Several initiatives to educate and train were implemented to help leaders increase their nuclear experience and knowledge. The results in Figure 10 show that the flag officers in the USN are perceived to be more experienced than USAF. One of the comments from the survey states: “The experience we [assumption is USAF] have is good but we don't have a deep base - very thin.” (Survey conducted by author 2016). A retired Naval Surface Warfare Senior Chief states the USN keeps their nuclear officers and enlisted in the nuclear realm, so they can become steeped with nuclear experience (Navy Nukes 2014). For example, the current Director of SSP (Vice Admiral Benedict)

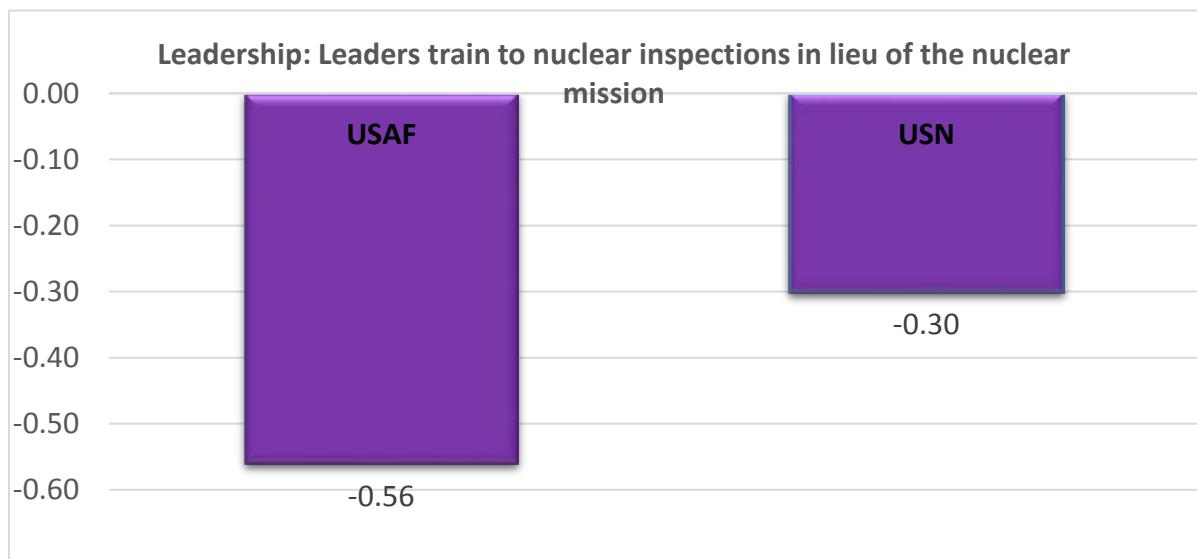
has completed nine tours within SSP and is very knowledgeable of the USN's nuclear enterprise (United States Navy 2015).



**Figure 11: Leadership Question 13&14**

Many leaders stopped making risky decisions for the fear of making a mistake and getting fired. The perception of leaders getting fired for failing an inspection prompted a risk-averse culture. The Creedon-Fanta Report recommended to stop firing leaders for minor mistakes or errors (Department of Defense 2014). A comment on the survey states: “Each sub-culture in each of the services handles risk differently. For example in the nuclear enterprise the bomber culture manages risk and is NOT averse, while the ICBM community is risk-averse.” (Survey conducted by author 2016).

The survey participants believe USAF's O-5s and O-6s are still risk-averse. There is a lingering mindset or culture that still resonates in the USAF nuclear mission. The culture is difficult to change and it takes time. When the next generation of USAF leaders take command, we may see less risk-averse leaders, because they didn't 'live' through the previous culture.



**Figure 12: Leadership Question 15**

The unit's mission and priority morphed into training for inspections. As the number of inspections increased, more emphasis was placed on them. To change the inspection culture, it was recommended to reduce the number of inspections by consolidating them. In Figure 12, all of the participants provided their input for both the USAF and the USN. The majority of the participants did not agree that the leaders train to inspections. A comment from the survey states: "If the inspections focus on the

mission, ‘training for the inspection’ does not occur in lieu of the mission. The issue here is how closely does the inspection measure mission accomplishment? In the past the Navy did a better job here. Inspection changes post 2014 have addressed this issue.” (Survey conducted by author 2016).

### ***Culture***

The onslaught of inspections had several side-effects, one of them being the zero-defect culture. After the recommendation was made to communicate that leaders will not get fired for mistakes or errors on inspections, senior leaders communicated that same message to the nuclear leaders. The survey participants agreed the communication is effective. Here are two comments from the survey:

- “Inspections are not used for punishments, but of course a failing grade is an indicator the unit leader isn’t where he or she should be.

it is natural that senior leaders may take action that subordinates might interpret as punishment.”

“Inspections are compliance based for NSIs [Nuclear Surety Inspections] . . . UEIs [Unit Effectiveness Inspections] to a degree assess compliance but are absolutely what we need.”

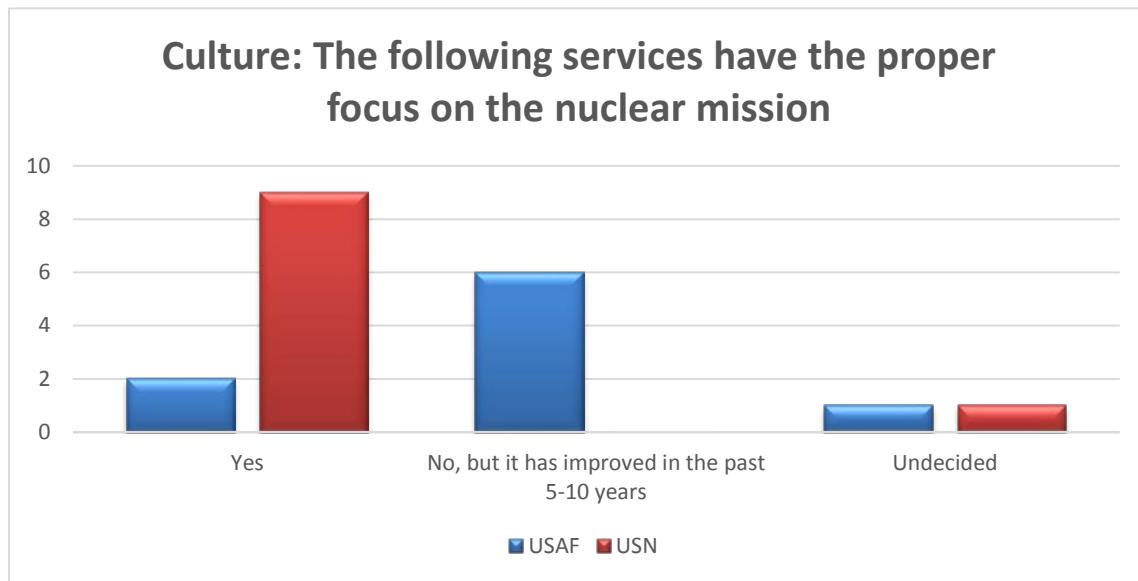


**Figure 13: Culture Question 16**

Figure 13 shows that inspections are no longer being used for promotion or punishment. Leaders utilize inspections to help identify gaps in their nuclear program(s).

Leadership would often make a statement, but there was no action behind it. This “say-do gap” is an issue in the nuclear enterprise. In Reinvigorating the Air Force Nuclear Enterprise, it states “in accordance with the Air Force number one priority to revitalize the Air Force nuclear enterprise, the Annual Planning and Programming Guidance (APPG) will reflect minimal risk to the Air Force nuclear enterprise during the POM [Program Objective Memoranda] process.” (U.S. Air Force Nuclear Task Force 2008). The USAF has stated the nuclear mission is its priority, but the Schlesinger Report

revealed many Airmen heard the same repeated statement that the nuclear mission is “number one”; however, many of them were skeptical of it (Schlesinger, Carns, et al., DoD Nuclear Weapons Management Phase I: The AF's Nuclear Mission 2008).



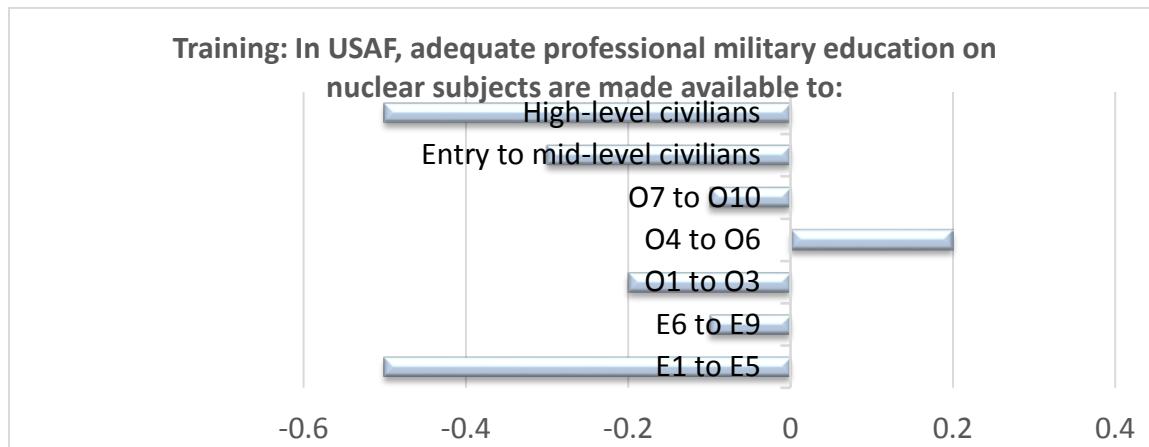
**Figure 14: Culture Question 22**

Figure 14 illustrates that the majority of the survey participants agree that the USN adheres to its words by making the nuclear mission its focus. On the other hand, the USAF still lacks the focus on the nuclear mission, but it has improved in the past five years. One of the recommendations made by the Welch-Harvey Report was to put action behind the words (Department of Defense 2014). One of the comments from the survey expands on this recommendation. “This culture was not present in the USN. Nuclear was a priority. In the AF, this situation has improved but nuclear is still not the first priority.

In addition, after the SECAF James and Deputy Secretary of Defense Work leave we will likely lose significant ground here.” (Survey conducted by author 2016). In the past several years, SECAF has diminished the “say-do gap”. For example, SECAF has visited every nuclear base, advocated for an increase in the nuclear budget, supported nuclear weapon system upgrades, and has emphasized the importance of the nuclear mission.

### ***Training***

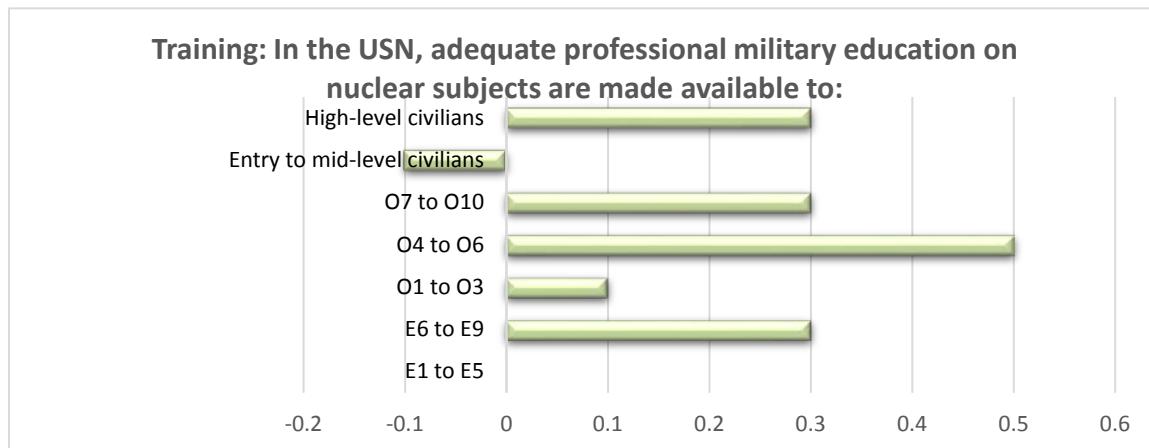
For Figure 15 and 16, high-level civilians are defined as O-5 to O-10 equivalents and entry to mid-level civilians are O-4 and below equivalents. The survey participants rated each rank structure in both the USAF and USN.



**Figure 15: Training Question 28**

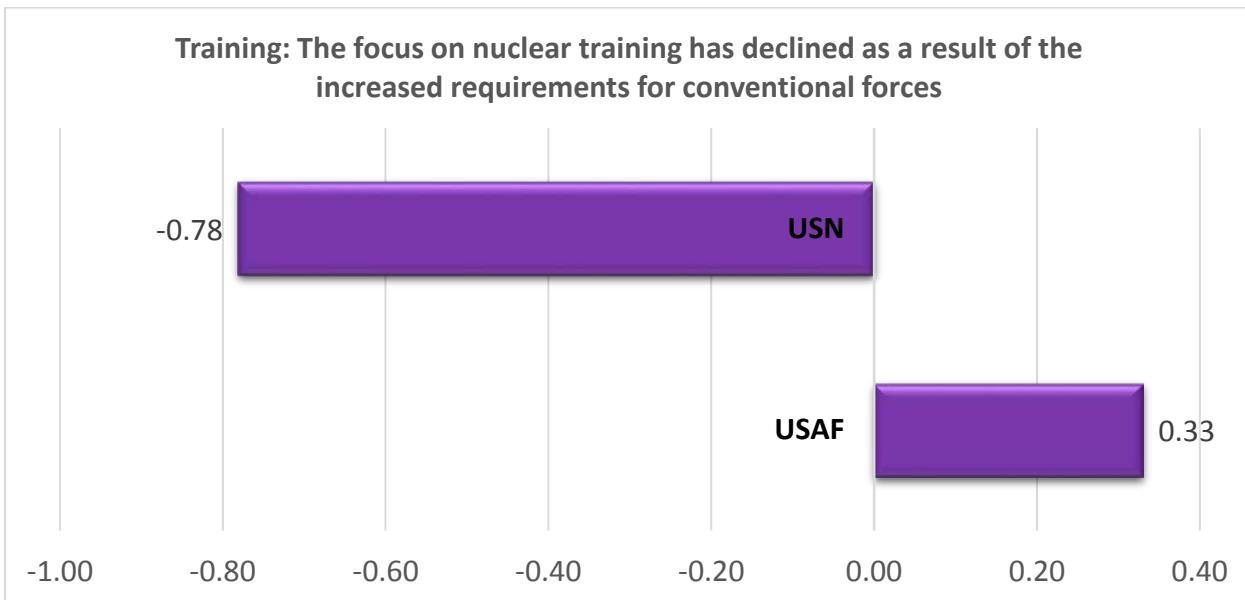
Figure 15 illustrates the opportunities for USAF O-4s to O-6s have increased, but the outlook for the other ranks look rather bleak. One of the suggestions made on the

survey is: “Courses like Nuclear 100, 200, 300 & 400 are good but insufficient. We need additional education courses and need to cover a broader section of the AF [and Navy] (esp civilians)” (Survey conducted by author, 2016).



**Figure 16: Training Question 29**

The results displayed in Figure 16 shows the USN is doing slightly better than the USAF. To help close the service gap, a suggestion made by one of the participants is to communicate the courses available to all MAJCOMs and services.



**Figure 17: Training Question 31**

The majority of the participants agree that the USN has not lost focus on the nuclear mission. One of the reasons why the USN can focus on the nuclear mission is the SSP, which was mentioned earlier. However, USAF has dual-capable units (B-52, B-2, F-15, and F-16) that still train for both nuclear and conventional missions. A participant made an observation stating: "...Tanker training for nuclear mission needs more emphasis...Nuclear training in the AF is not where it should be, but focus on nuclear training in the AF is improving." (Survey conducted by author, 2016).

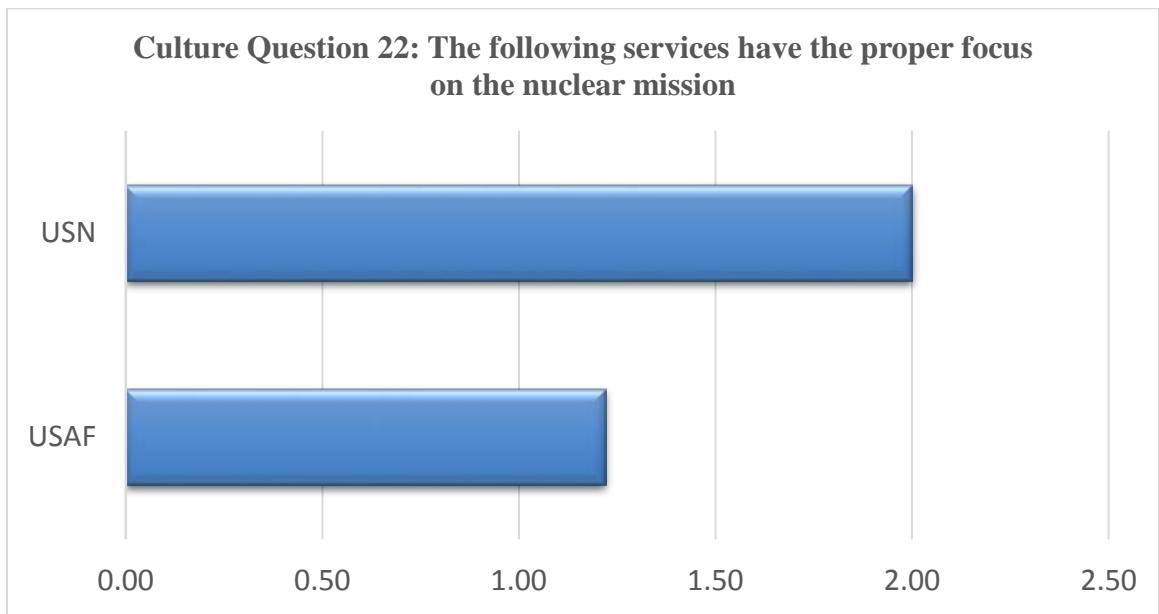


**Figure 18: Training Question 32**

Question 32, Figure 18, differs from the other survey questions. Since the response selection is ‘yes’, ‘no’, ‘no, but it has improved in the past 3-5 years’, and ‘undecided’ the scale is 1 to 6 compared to the -2 to +2 of the other survey questions. The number represents the number of votes each response received. For example, there are four participants who selected yes, training has improved, for the USAF. The response ‘no, but it has improved in the past 3-5 years’, was included to show improvement in the nuclear enterprise. The majority of responses for the USN is undecided, since the majority of the participants are in the USAF. For the USAF, a split between ‘yes’ and

‘...it has improved in the past 3-5 years’ is illustrated. This is a positive perception and sign for the USAF. One of reasons for the increase could be the additional instructors at the training units. More instructors were allocated to help alleviate the bottleneck and to improve the quality of training. The other reason for the increase in training could be attributed to the decrease in inspections. With less inspections the units can concentrate on training for the mission and not for inspections.

The next three survey questions are separated into the following section because the results were unanimous.



**Figure 19: Culture Question 22**

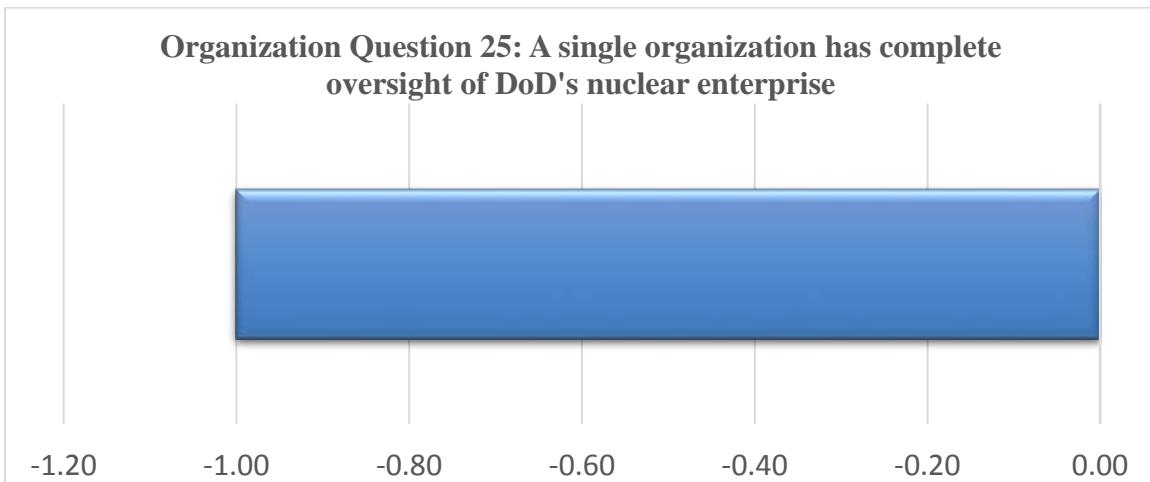
Responses for the USAF were 70 percent replied no, but it has improved in the past 5-10 years and 18 percent replied yes; whereas the USN had 91 percent responded

yes and 9 percent was undecided. Once again the USN has an overwhelming advantage over the USAF. Two participants commented on this question.

- “AF - needs Sr-lvl [Senior Level] (3/4-star) buy in (outside of AFGSC/AF/A10) USN - Needs to embrace outside of Navy reviews / observations of their inspections”

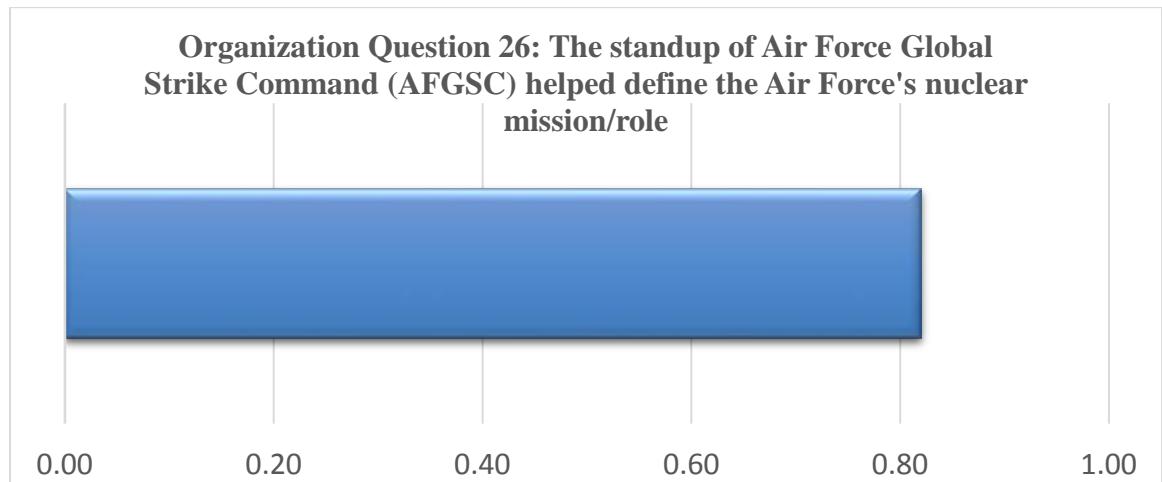
-“ Creating the HAF/A10 is a positive step to improve the nuclear mission and, at the same time, a very negative one as it has the potential to remove authority from others in the pentagon that should grab nuclear as their number one priority. Therefore, we have one organization focused on nuclear 24X7 and other organizations that view the system as such...’CONVENTIONAL’ and ‘nuclear’.”

Suggesting to share the nuclear ‘love’ in the Pentagon would increase awareness of the mission. Senior leaders and organizations, without the nuclear mission, do not have much interest in it; however, if the nuclear mission included these senior leaders and organizations, they may learn how important the nuclear mission is.



**Figure 20: Organization Question 25**

The responses from the participants all agreed that there is no single organization in DoD that has complete oversight of the nuclear mission. One of the participants commented that “there is no single oversight of the entire nuclear mission, but USSTRATCOM has complete command over the operating force.” (Survey conducted by author, 2016). This question was asked because there was no single organization in the USAF that oversaw its nuclear enterprise, until AFGSC. Both AFGSC and SSP are the single organizations, in their respective services, with the nuclear mission. Both are proven to be successful. Would the nuclear enterprise benefit if the DoD had an organization that oversaw both USAF’s and USN’s nuclear enterprise? An assumption may be that the nuclear enterprise is too big for one organization in DoD to care and feed for it.



**Figure 21: Organization Question 26**

Of the participants there were 9 agrees, 1 disagree and, 1 undecided. No comment was left for the one disagree, so speculation was suggested. Overall, the senior leaders state that AFGSC is a success.

## **Survey 2**

The results for this portion of the chapter are from AFGSC's FIP survey. The specific questions pulled from the AFGSC's survey relates to this research. There are more data points in the AFGSC's FIP survey available for analysis which can be retrieved on its SharePoint page at

<https://org1.eis.af.mil/sites/afgsc/internal/FIP/default.aspx>.

Air Force Global Strike's FIP team conducted peer-to-peer interviews and group discussions to collect their data. For the survey results the 2014 Bomber FIP (BFIP) quantitative analysis is used. The FIP team interviewed 229 leaders and 4,190 non-leaders. Both categories included enlisted and officer ranks (AFGSC BFIP slides 2-3, 2014). There is no data in the survey that defines leader and non-leaders. The FIP team further divided their survey into five groups: mission support and medical, maintenance, operations, operations support, and security forces.

The FIP team asked if leaders have the qualifications and experience to make the correct decisions in the nuclear enterprise. The average response from the five groups was 48 percent concurrence, with the highest from the operational support at 60 percent and the lowest from maintenance at 41 percent (AFGSC BFIP slide 4, 2014). These results are comparable to the senior leaders that were surveyed. There is not a resounding agreement from the research's survey and the FIP interview, but there is a positive perception that leadership's experience and qualifications are improving.

The FIP team also inquired if the training requirements and programs adequately prepare the members of the unit to accomplish their mission (AFGSC BFIP slide 5, 2014). The average response from the five groups was 43 percent concurrence, with the highest from the operational support at 67 percent and the lowest from security forces at 29 percent. The quality of training still needs to improve at all levels in the nuclear

enterprise. Once again this perception from the unit level coincides with the senior leaders that were surveyed.

Perception is an example of how an implementation is considered to be successful. The expectation effect can explain the reasoning behind this. The expectation effect is “ways in which expectations affect perception and behavior. Generally, when people are aware of a probable or desired outcome, their perception and behavior are affected in some way.” (Lidwell, Holden and Butler 2003). A few examples of expectation effect are Halo Effect, Hawthorne Effect, Pygmalion Effect, Placebo Effect, and Rosenthal Effect (Lidwell, Holden and Butler 2003). If senior leaders desire a successful outcome, more effort will be exerted in the implementation. Senior leaders may increase communication on the implemented program and publicize how successful it is. The same perception is now echoed from MAJCOM to unit level organizations. In the opinion of this researcher, this is one of the reasons why communication is vital in the nuclear enterprise.

### **Assessment: (Investigative Question 3)**

Using the steps outlined in the previous chapter, KPIs are used to help organizations measure their goals or objectives. In the PAD and PPLAN for AFGSC the end-state was defined. Air Force Global Strike Command can build upon those end-state objectives, since that is the foundation of why AFGSC was stood up. Using strategic KPI,

a top down approach is used. The vision of AFGSC is developed by senior leaders and is defined as “Innovative leaders providing safe, secure and effective combat-ready forces for nuclear and conventional global strike...today and tomorrow!” (Air Force Global Strike Command 2016). The strategic plan that supports the vision is “...establishing the impetus for nuclear deterrence and global strike operations.” (Air Force Global Strike Command 2016). Air Force Global Strike Command has three objectives: mission, airmen, and families. This report will use mission as the objective to continue to demonstrate KPIs. Within the mission there are several sub-areas defined to meet the main objective. One sub-area is “focus training to achieve and exceed standards.” (Air Force Global Strike Command 2016). At this point leadership needs to identify the CSFs. A question to ask is, what is the standard for training? Does AFGSC compare its training standards with the other MAJCOMs? Air Force Global Strike Command’s strategic plan defines two CSFs, which are referred to as measures of success. One of the CSFs AFGSC identifies is “Training requirements accomplished to a sufficient level to meet readiness requirements in accordance with OPLAN [Operations Plan] and AEF [Air & Space Expeditionary Force] taskings or as directed.” (Air Force Global Strike Command 2016). Now that a CSF for AFGSC is identified the KPI can be defined. Air Force Global Strike Command’s Strategic Plan has two KPIs defined, but refers to them as metrics. One of the KPIs identified is “Sufficient number of CMR [Combat Mission Ready] crews

remain current on ground training events impacting CMR status in order to fulfill OPLAN and AEF taskings when executed as well as Designed Operational Capability statements (A3, NAF, Wing) [A3].” (Air Force Global Strike Command 2016). This KPI does not define a specific number of crews, because it is a classified number. This KPI identifies the number of crews needed, mandatory training events, and specifically what ground items affect CMR. If one of the areas falls below the specified number, then AFGSC has failed in its objective. If this trend would occur in all of AFGSC’s units, then AFGSC would fail on a larger scale. Continued failures may lead to other recommendations or actions enforced by senior leaders. An extreme example of a continued failure in the USAF’s nuclear mission could be to stand up an organization like USN’s SSP, where the nuclear mission is the only mission. Key performance indicators are used to continually assess the CSFs to ensure AFGSC remains successful.

*“I think and think for months and years. Ninety-nine times, the conclusion is false.  
The hundredth time I am right.”*

*-Albert Einstein*

## **V. Conclusions and Recommendations**

### **Chapter Overview**

Research and analysis conducted in this study provide the foundation for final observations and recommendations. Research highlighted several challenges; however, the overall research questions were answered. Assessment of data gathered and analyzed identified shortcomings associated with the implementation of changes within the nuclear enterprise. Ultimately, the purpose of this chapter is to provide senior leaders with recommendations to enable continued success of the nuclear enterprise.

### **Conclusions**

Researching and synthesizing the nuclear reform reports was a vigorous, but humbling experience. Yet it served as a reminder of the strategic importance of the nuclear mission and how critical the Airmen, Sailors, Soldiers, Marines, and supporting organizations are to the nuclear enterprise. With that being said, it is a double edged sword. The same people who do their best to train, execute, and support the nuclear mission are equally capable of crippling it. The success of the nuclear enterprise is greatly attributed to those who unashamedly advocate for it. Top leaders (e.g. Secretary

of the Air Force and Secretary of Defense) consistently show their support by putting actions behind their words. Their support adds credibility to our senior leaders and to the nuclear enterprise.

The CSF methodology was the best process identified for this study. Chapter three highlighted AFGSC as a very successful implementation. Air Force Global Strike Command is not the typical case analyzed in this study, because it was event driven by the 2007 and 2008 events instead of a process improvement. Nevertheless, it serves as an excellent example to explain a successful implementation. If the process of creating AFGSC can be documented in a formal manner, those same principles should easily apply to the processes on a much smaller scale.

The goal of this study was to discover a process that was successful from the initial identification as an issue to Full Operational Capability (FOC) status. This proved to be unattainable since the initial identification is determined by a very senior group of leaders convening at a conference recognizing an issue. The issue then requires the senior leaders to reach a majority and agree on a decision. Without this decision, recommendations will never be considered. Information on the actual process within those senior leader conferences was not available for this study; therefore, a true beginning-to-end process analysis was not possible. However, process analysis was possible once recommendations were implemented.

Initially when this research paper was in the inception stage, the investigative questions were looking in the wrong areas. For example, investigative question one (IQ1) was; why are some recommendations implemented and others are not? As the research progressed, there was no concrete solution to this question. Investigative question one then changed to; what factors contribute to a successful implementation? Once again this was an unachievable question to answer. As the paper matured the questions evolved to reflect what the paper was really researching. The final IQ1 evolved into; what process is used to get a recommendation implemented? The question is still not answered, because once again there is no magic formula or set standard to answer the question. What was answered is, what process is necessary to ensure an implementation is successful? The answer is CSFs and KPIs, which occur after a recommendation is implemented. With that being said, there is no groundbreaking discovery of what makes a recommendation successful, the main outcome was just finding a process that increases success of an implementation.

## **Significance of Research**

Several papers describe how to develop CSFs for commercial organizations, but none of the papers describe how to apply the process to the DoD's nuclear enterprise. This report provides a formal process to successfully implement recommendations and how to continually assess the implementation when it becomes FOC. Secondly, this

research tracked the current status of implementations, a task that many organizations do not undertake. For example, former SECAF Donley stated that the Nuclear Enterprise Advisory Panel (NEAP) would track the development of nuclear leaders with HAF/A10 serving as the chair. However, information pertaining to the NEAP was absent; therefore, it appeared the implementation failed. In actuality, the NEAP was replaced by Nuclear Enterprise Senior Steering Group, which subsequently dissolved. Ultimately, the NEAC replaced both groups and is currently the agency who tracks and manages nuclear enterprise leaders. Consequently, in order for some implementations to be successful, they have to be modified during deployment in order to achieve the objectives. Lastly, this study's survey garnered several comments from senior leaders that reiterated why there are still problems in the nuclear enterprise. These comments were included in chapter four to gain exposure.

## **Recommendations for Action**

Using the survey for this research and AFGSC's interviews, a comparison study was conducted on the commonalities in the comments. The following recommendations came from that comparison.

### ***Recommendation 1***

The lack of nuclear education in the nuclear enterprise is identified in several reports. Even though some of the recommendations have been implemented, the

initiatives still missed the mark. Some of the survey comments state the scope of education is too broad while others have stated it as too narrow. There are several organizations that offer nuclear enterprise education; however, a major problem observed is the lack of collaboration between all of the organizations. The recommendation is that all of the organizations collaborate on courses they offer and develop a degree type program, thereby creating a nuclear university that any service member or civilian personnel can attend. The program should create three different levels (novice, intermediate, advanced) and offer classes at each level. As a student progresses through each level, they will become more immersed in nuclear experience as the studies become more in-depth. The first level would comprise the basic nuclear enterprise courses for a broad familiarization. The second level would require students to grasp concepts such as deterrence and assurance, space and cyber operations, and nuclear weapons orientation. The third level would consist of courses like nuclear policy, strategy, and international relationships. The degree or certificate program would also require a minimum number of electives in each level to be accomplished. This university offers the student the flexibility and focus necessary to add value to their organization or career. This university does not have to be centrally located. The schoolhouses can remain regional, i.e. in their current locations, because each location would have something unique to offer. This university should also include the national labs (Sandia, Livermore, Los Alamos, etc.)

due to their resources and classes they offer. For example, Sandia has several classes that its weapon intern program students attend. The nuclear university should allow all National Nuclear Security Administration and the Department of Energy employees the opportunity to attend as well. This effort to include the national laboratories and other organizations will boost collaboration and strengthen the nuclear community.

### ***Recommendation 2***

The results of the survey for this research suggested that the USN outperformed the USAF in most categories. The reports reviewed for this research paper have also suggested that the USN's SSP has the right mindset and organizational structure for the nuclear enterprise. One observation was that the USN has a single voice for their nuclear mission: the Director of SSP. The Director of SSP is a flag officer who is steeped in the nuclear enterprise, highly qualified, and solely focused on the nuclear mission. The single mission for SSP has allowed the USN to excel in almost every aspect. My recommendation is to commit the necessary aircraft and crews at a B-52 wing and at a B-2 wing to the nuclear mission. This will allow the wings or squadrons to be focused on the nuclear mission. Going back to a SAC type of mentality will help increase the quality and experience of the Airmen supporting the mission. The maintainers and crews from the conventional missions should be allowed to transfer into the nuclear units. This will bring a diversity of thought to the nuclear culture. This diversity will enable the nuclear

mission to thrive by incorporating different points of view and improved processes. The Airmen committed to the mission should remain in the nuclear enterprise to maintain and increase their experience. These Airmen will develop into the nuclear experts and leaders that the USAF desperately needs. Secondly, having bomber squadrons dedicated to the nuclear mission will increase the U.S.’s nuclear posture by facilitating a hybrid warfare. A hybrid warfare blends conventional, nuclear, cyber, and irregular warfare, which exploits the ‘full-spectrum’ of threats (F. G. Hoffman 2009). A suggestion for a future research paper is to explore the value of hybrid warfare to the nuclear enterprise.

## **Summary**

In the past two decades the nuclear enterprise has slowly eroded. Every issue, big or small, has taken its toll on leadership, the culture, organizations, and training. It appears all of the issues were swept under the rug to hide the symptoms. The two major incidents in 2007 and 2008 raised a red flag. The nuclear enterprise was now being noticed, but not for positive accolades. Several reports on the nuclear enterprise were published and hundreds of recommendations were made. One of the more well-known successful recommendations is the creation of AFGSC. This case was used in the research to describe the process from the beginning to present day. This example was used because the documents were made available for public release and there were sufficient sources that documented the process. In chapter four surveys and interviews

were used to add depth to the research. The surveys, interviews, and recommendations were then synthesized to compare results. In order to reduce bias, senior leaders, mid-level commanders, supervisors, and subordinates were included. The analysis suggested that regardless of rank or position was, comments and perceptions were similar. Finally, recommendations were made to help improve the nuclear enterprise. Using the methods and process described in this paper will help ensure the success of future implementations.

## Appendix A: DoD Nuclear Weapons Management Phase I: The Air Force's Nuclear Mission

<b>KEY: L = Leadership; C=Culture; O=Organization; T=Training</b>	
DoD Nuclear Weapons Management Phase I: The Air Force's Nuclear Mission (2008)	
LC	AF provides periodic reports on improving nuclear weapons management
LC	Review nuclear related instructions; ensure current, consistent, sufficient
LC	IG involvement in the process of developing Op and procedural guidelines for nuclear-related inspections
LC	Policy for frequency and min acceptable levels of participation and designate central waiver authority for nuclear ex
LC	AFIG spearhead the overhaul and standardization of nuclear inspection process
LC	CSAF establish guidance for conduct of SAVs and ensure it is properly sourced and staffed w/experts
LC	SECAF provide resources necessary for initiatives required to upgrade/revitalize the nuclear msn
LC	AF/A1 define nuclear-critical billets and ID critical nuclear positions
LC	AF/A1 establish manpower standards for all career fields support nuclear mission
LC	AF/A1 Airman assigned to key ops unit nuclear billet should be "deployed in place"
LC	AF/A give the CC option to reclama voluntary deployment requests
LC	SECAF provide guidance to successive promotion and special selection boards; need to promote nuclear Amn
LC	AF/A1 authorize intel officers to each of the missile wings and to HQ 20AF
LC	AETC conduct a curriculum review of PME to include nuclear matters subjects
LC	Conduct more small-scale wargames aimed at shaping internal attitudes on nuclear weapons
LC	Est school for nuclear ops focused on professional excellence in deterrence missions
LC	CSAF establish senior mentor program for nuclear ops
O	<i>Redesignate AFSPC to AFSTRAT</i>
O	SECAF and CSAF direct the assign of all AF bombers in 8AF
O	SECAF and CSAF direct removal of all non-bomber related missions from 8th AF

O	Reassignment of 8AF from ACC to AFSTRAT
O	Review and validation of manning and resourcing of AFSTRAT HQ, ACC HQ, ICBM/Bomber NAFs, Wings
O	Review NAF grade structure to ensure equitable w/other NAFs
O	Designate AFMC CC as Executive Agent for AF nuclear weapons and related material
O	Strengthen Air Staff oversight and policy function by adding 1-star billet to AF/A3/5N
O	AF/A4/A7 develop guidance to create category of assets encompasses sensitive nuclear delivery system
O	ICBM expertise should be required when filling senior leadership within 526th ICMB Group

## **Appendix B: DoD Nuclear Weapons Management Phase II: Review of the DoD Nuclear Mission**

	DoD Nuclear Weapons Management Phase II: Review of the DoD Nuclear Mission (2008)
C	DTRA to seize DNSIs and only conduct Service Proficiency Evaluations
C	Develop specific guidance for evaluating PRP for units not subject to inspection
O	SECDEF reduce the number of missions assigned to USSTRATCOM
O	AF/A1 and A10 develop policy to ensure personnel assigned to nuclear units remain on station for a min period
T	All USAF Weapons grads in dual role demonstrate same level of prof in nuclear weapons employment as the conv msn
O	Designate flag-level officer on Joint Staff, sole focus on the nuclear msn
O	Joint Staff update joint nuclear ops doctrine and develop nuclear deterrence joint ops concept
O	Joint Staff sponsor senior-level exercises on three levels; military, military/OSD, whole of gov't
O	Expand responsibilities of the Nuclear Weapon Council to include issues involving the full range of nuclear capabilities, including weapons, delivery systems, infrastructure, policy implementation, and resources
O	Nuclear Weapon Council develop and maintain a nuclear capabilities roadmap for the modernization and sustainment of the nuclear deterrent force (deterrence policy, forces, and infrastructure)
O	Validate operational requirements for providing capabilities to include modernizing or replacing the capabilities now provided by Dual-Capable Aircraft, ALCM, and TLAM-N
C	Establish a requirement for biennial self-assessment of the Navy nuclear weapons enterprise
LO	Expand role of the Director of SSP as the single authority for nuclear weapons programs and operations, and elevate the position of the SSP to a three-star billet
C	Direct a nuclear weapon enterprise manning and experience study to examine the shrinking experience base (NAVY)
T	Review and expand professional military education curricula on concepts of nuclear deterrence, strategy, planning, and operational theory (NAVY)

T	Require a greater number of Naval officers to complete appropriate educational programs to sustain expertise required to support leadership and staff billets in deterrence policy and strategy positions as well as nuclear ops and technical matter
O	Implement the proposals for additional manpower billets required to restore SSBN squadrons and submarine groups, including the reestablishment of the group commander positions and full staffs on both coasts
O	Review TACAMO wing manning and billet funding status to ensure the wings are appropriately manned at 100 percent of “wartime” levels
O	Review SSP civilian and military manning and provide sufficient resources for proper oversight in light of additional missions
T	Fully resource all support elements for the TACAMO mission, including trainers and mobile reconstitution capability equipment
O	Reduce the number of missions assigned to USSTRATCOM, limiting them primarily to the deterrence, global strike, and space missions
L	USSTRATCOM, if at all possible, should be filled with a general or flag officer with significant operational nuclear experience
O	Institutionalize the role of USSTRATCOM as the lead combatant command advocating for capability development, requirements, and resources for both strategic and theater nuclear systems
O	USEUCOM staff with nuclear weapons responsibilities should be fully manned with nuclear-experienced personnel
O	The Secretary of the Air Force should direct that USAFE retain control of the Weapons Storage Security Systems (WS3) in Europe rather than placing them under control of the Air Force Nuclear Weapons Center
T	Direct the Air Force Education and Training Command to train all aircrew that will be assigned to DCA to be fully qualified in nuclear operations upon completion of initial qualification
O	Designate a flag-level officer on the Joint Staff whose sole focus is the nuclear mission. Staffing and resourcing for the Joint Staff functions of nuclear strategy, plans, policies, exercises, and analysis should be increased
T	The Joint Staff should sponsor senior level exercises on three levels: within the military, military/OSD, and whole of government

## **APPENDIX C: DoD Defense Science Board Independent Assessment of the Air Force Nuclear Enterprise**

	Defense Science Board: Independent Review of AF Nuclear Enterprise (2011)
L	AF leadership should maintain realistic expectations regarding state of acct for NWRM
L	Needs of the nuclear enterprise to sustain the force are given priority
L	Funding and program authorize to logistics essential to nuclear deterrence msn commensurate w/priority of nuclear deterrence msn
L	Urgent attention to 40+ warhead and missile mx support and test equip
	Assign all base-level ops and logistics function to strategic missile and bomb wings thru NAF to AFGSC
C	Intense inspections regime is sharply refocused on areas of continuing concern rather than serving as substitute chain of CC
C	Normal inspections schedule, single NSI each 18mo and NORI each 18 mo. DNSIs as needed
C	Follow-up re-inspections and special inspections conducted only to address unsatisfactory ratings or sign negative trends
C	Provide qualified people to operating forces in career fields that are both fragile and critical to nuclear msn
C	Immediate adjustment to AF guidance/practices to remove PRP-based restrictions and monitoring
C	Reexamination of the continued utility of set of special HQ org
C	# of inspectors from multiple org is tailored to the size and complexity
O	A1 direct a zero-base assessment of the logistics center and op unit engineering and mx manpower requirement of aging equipment
O	Public relations and promotional messages include nuclear forces portraying AF msn and focus
O	CC at all levels frequently reinforce the primacy of the nuclear deterrence msn w/communication HQ, MAJCOM, and nuclear forces
O	AFGSC CC moving adhoc approach to meet the nuclear bomber commitment to a formal program
O	Trust technicians judgement vs risk avoidance on cosmetic defects w/tech data and training program judgement

O	Provide on-site engineering support until processes are in place to separate cosmetic defects
O	USAFE A3 provide clarity on elements of DCA that require continuous readiness
O	Id disconnects between NATO and USAF directives
O	AFGSC complete ongoing work to supplement AFIs as needed to provide clear direction for nuclear weapons ops

## APPENDIX D: DoD Defense Science Board Air Force Nuclear Enterprise Follow-On Review

	Defense Science Board: AF Nuclear Enterprise Follow-On Review(2013)
L	Establish quarterly newsletter informing the operational forces of completed actions and plans underway to support equip and other logistics needs, changes in policy, and resource updates
L	Include media appropriate to the intended audience to continuously update information relevant to the concerns of the workforce
O	Dep Assistant SEDEF for Nuclear Matters should lead an effort to eliminate the non-productive workload and unnecessary handling of nuclear components
T	Direct full funding of development of publication of changes, updates, and rewrite of Technical Orders support nuclear operations
T	Ensure revised Technical Orders are vetted by hands-on experts before publication
O	AFGSC CC should ensure the supply specialists provide to the wings for the purpose of helping establish special supply levels to deal with nuclear systems
T	Give high priority to the development of a weapons training facility for cruise missile launcher training at Minot
O	AFGSC and HAF/A1 should create and implement a manning standard that addresses the unique characteristics of a missile wing operating over thousands of square miles
CO	Review and update DoD 5210.42R to provide clarity in baseline requirement assuring that the PRP is implemented as a CC's program w/ clear accountability for determining the fitness for duty of people subject to the PRP
OT	HAF A1 establish a procedure to ensure when assigning personnel to PRP positions there is an early termination to personnel who do not qualify
LO	The Commanders, AFGSC and Air Force Inspection Agency (AFIA) should strongly enforce the concept that the wing commander is responsible for a self-inspection program that ensures that the commander knows the mission and compliance status of wing capabilities and an important function of the inspection team is to validate or identify discrepancies relevant to the wing commander's assessment

O	HAF A1 in coordination with the AFIA should assess the additional manpower needs for an effective self-inspection program
LO	The Secretary and the Chief of Staff of the Air Force should clearly declare the primacy of the authority of the mission chain-of-command accountable for the performance of the mission and the priority accorded the mission

## APPENDIX E: Independent Review of the DoD Nuclear Enterprise

Independent Review of the DoD Nuclear Enterprise (2014) WELCH-HARVEY REPORT	
L	Direct quarterly meetings w/ leadership on progress toward complying w/ the SECDEF's direction on various corrective actions.
L	On a regular and sustained basis, make it clear to all of the DOD that nuclear forces remain an essential underpinning of U.S. national security.
L	Est & support programs that maintain high awareness of verbal & written public declarations that question the need for nuclear forces and respond with equally public declarations.
O	Direct that the loosely federated nuclear activities within OSD and the Air Force be brought together into a coherent and synchronized structure that focuses on direction and support for the nuclear forces
L	Establish that the nuclear mission has first priority and that the priority is to be reflected in personnel, logistics, and funding support
LC	Direct that the Services address, in detail, the disconnects between expectations of meeting mission demands and the obstacles to meeting those expectations imposed by micromanagement, distracting emphasis on preparing for inspections, inefficiencies introduced by multiple directions from multiple sources—technical orders, instructions, higher headquarters directives, manuals—and the plethora of requirements that do not contribute directly to the mission
C	Direct the operational chain of command to filter non-mission direction instead of adding to the excess load on the mission forces
CT	Direct that manning assessments address, in detail, the disconnect between available manning qualified to perform mission tasks and the total workload imposed by the mission and by issues addressed in the preceding recommendation
LC	Direct that the most basic needs for Sailors and Airmen and their families receive priority attention—repairing broken equipment, adequate clothing for cold-weather conditions, vehicle maintenance, and providing support services (e.g., childcare center hours, commissary hours, fitness center hours, medical services)
C	Direct that in addition to attention to the performance of the unit, inspection teams evaluate and report on the quality of higher headquarters' support for

	the unit's mission accomplishment and on those processes, procedures, and practices that are obstacles to mission performance
LC	Bluntly and openly acknowledge the problems that have continued to develop since additional focus was placed on the nuclear enterprise in 2007-2008
LC	Clearly and forcefully, give the force your personal commitment to closing the current institutional "say-do gap."
LC	Direct a move from a culture of micromanagement by commanders and supervisors to a culture of empowerment of qualified people to do their critical work
LC	Hold senior leaders accountable for the required actions to assure both the confidence of the force and confidence in the force
OE	Make it clear to all that individual behavior is a matter of personal responsibility and that failure to meet performance and behavior norms is a military discipline issue to be addressed by commanders
LC	The Secretary of the Navy and the Chief of Naval Operations (CNO) should ensure that the Director, Naval Reactors provides an in-depth report on actions to address the broader organizational, cultural, and institutional leadership issues contributing to the cheating incident at the Nuclear Training Unit (Prototype) and cheating incidents that have occurred elsewhere in the Fleet
LC	The Chief of Naval Operations and the Chief of Staff of the Air Force (CSAF) should ensure that training and skill testing is focused on measuring whether the Sailor or Airman's knowledge is necessary and sufficient for the mission, but does not devolve into a counterproductive continuous demand for higher grades
	Initiate a program to enhance recognition and reward for ICBM duty
O	Direct that, on a continuing basis, officers completing their initial missile combat crew assignment, in excess of those needed for extended 13N duty specify three choices of follow on career paths with assurance of selection for one of the three
LC	Consider special pay for personnel who regularly perform duty deployed from the home base to the missile field
LC	Increase field grade presence in ICBM operational squadrons
C	Return full authority to the Missile Combat Crew Commander for execution of the specified duties of the Combat Crew

O	clarify the roles of the OSD and Joint Staff and realign the structure within OSD and the Joint Staff to meet the need to synchronize nuclear activities across DOD to include addressing issues of policy, strategy, mission, platforms, weapons, and support
O	create a coherent and specialized nuclear enterprise focus encompassing Air Force headquarters, Air Force Materiel Command, U.S. Air Forces in Europe, and Air Force Global Strike Command
O	Ensure that supply chain expertise is integrated into those units (e.g., maintenance squadrons) that require the knowledge to effectively and efficiently work within the supply system to address units' supply needs
LC	initiate the actions recommended for the Secretary of Defense in Section II of this report, and be clearly seen by their respective forces to have taken ownership of the nuclear mission
L	Provide guidance that the first priority for commanders is to empower those under their command to perform the nuclear deterrent mission effectively and efficiently, and there will be no tolerance for practices that place risk of criticism above risk to the mission
LC	Effective and efficient execution of the mission demands that commanders and supervisors empower their people by driving decisions down to the lowest level qualified for the decisions
C	The preferred corrective action for errors is to correct, not punish, the Sailor, Airman, or Marine's performance with additional information, training, or hands-on supervision appropriate to the situation
CT	Provide the support (to include investment) needed for the men and women in the force to meet the professional demands of their daily work consistent with the declared priority of the mission
LC	Empower all levels of command and supervision to use their professional expertise and judgment to execute the mission within established guidelines and directives
O	clearly establish that the A1 community is accountable to the Chief of Staff and to commanders for forecasting and filling personnel needs with the functional managers contributing to career development and providing advice as needed but not direction
C	Eliminate the requirement for additional agencies to inspect in parallel with Service inspection teams
C	Transfer responsibility for oversight inspections of Service inspections from DTRA to USSTRATCOM and USEUCOM

C	Require that inspection reports provide useful information to commanders at all levels on what and how the unit is doing, what the higher headquarters and support organizations are doing for the unit and, what the structure outside the unit is doing that makes mission execution more difficult and more costly to the Sailors, Airmen, and Marines who perform the mission
C	Differentiate sharply between inspections and assistance visits by ensuring that assistance visits respond to specific needs identified by the unit commander, rather than to the higher headquarters staff, and that reports generated by such visits are for the unit commander to use as the commander sees fit
C	direct the Navy and Air Force formal training activities to develop capability to require a hands-on demonstration of skills before graduation in addition to heavily computer-based training and testing
C	Establish and institutionalize across Headquarters Air Force and Air Force Materiel Command that responding to Air Force Global Strike Command needs is their highest priority with near-term demonstrations of support that are immediately visible to the nuclear forces
T	Significantly strengthen the influence of the Air Force Global Strike Command in setting and sustaining priorities, ensuring effective follow-through on solutions to needs and issues, and in conveying the importance of the nuclear deterrent mission
O	The strongly preferred option to address this issue is to elevate the Commander, Air Force Global Strike Command to a four-star position
O	If the preferred option is not possible, an alternative is to retain the current Air Force Global Strike Command structure but create a four-star Air Force Strategic Command with broad strategic forces responsibility, authority, and accountability with Air Force Global Strike Command as one of the subordinate commands
O	establish that the ICBM Launch Facility and Launch Control Center are integral parts of the ICBM weapon system
L	communicate the nuclear investment plans and programs, near-, mid-, and longer-term to ensure that Sailors, Airmen, and Marines performing the nuclear mission know what to expect beyond visible progress in support of field operations
O	direct that the Services invoke commander's right to arm authority as the standard to determine the reliability of nuclear security forces and eliminate the application of the PRP for nuclear security forces

OC	Direct that the inspection teams are to determine that proper PRP processes and procedures are in place to inform commanders and for commanders to take appropriate action. Inspectors are not to audit records
O	Establishing that people qualified under PRP remain qualified with changes of station until there is an explicit reason to doubt continued qualification. A new station with new duties or an interval between PRP required assignments is not such a reason
C	Establishing that only cause, not the potential for cause is reason for suspension from PRP
CO	Charging commanders and supervisors, not the PRP monitor and medical community, with the responsibility to know their people and their issues that could affect fitness for duty

## APPENDIX F: Reinvigorating the Air Force Nuclear Enterprise

Nuclear Enterprise Roadmap (2008)	
O	Consolidate all nuclear sustainment functions under AFMC/AFNWC. (OPR):AFMC, create Mission Directive
OT	Establish positive inventory control measures for nuclear weapons-related materiel.
OC	Enhance Nuclear Inspection processes: establish an AF-wide inspector training and certification program; implement independent oversight of all command-level NSIs by SAF/IG; establish a centrally managed core team of highly experienced NSI inspectors; establish procedures for adjudicating discrepancies between MAJCOM and oversight teams
T	Align strategic deterrence/nuclear operations-based education, training, career development and force development activities
O	Increase nuclear mission focus, by placing all ICBMs and nuclear-capable bombers into a single command: establish Air Force Global Strike Command
O	Increase USAF institutional nuclear focus, policy oversight, integration and establish air staff nuclear accountable officer
O	Improve nuclear stewardship in AF corporate processes: Consolidate nuclear related Program Elements into one panel or a similarly robust management portfolio; revise Group, Board, Panel and Council structure; develop a beta-test nuclear enterprise virtual Major Force Program
O	Create strategic plans that address long-term nuclear requirements...Cruise Missile; Bomber; DCA; ICBM
O	Charge the Under Secretary of the Air Force with ongoing broad policy and oversight responsibilities for nuclear matters
O	The Secretary of the Air Force establishes policy for nuclear matters. The SECAF and CSAF will jointly chair the Air Force Nuclear Oversight Board (NOB) which shall meet at least quarterly to resolve outstanding issues, and specifically to: 1.) oversee implementation of this roadmap, and report progress to SECDEF and Congress; 2.) review nuclear policies, standards, performance metrics, and compliance; and 3.) ensure continuing effective stewardship of the Air Force nuclear enterprise

C	Rebuild a culture of accountability and rigorous self-assessment dedicated to high standards of excellence in the Air Force nuclear enterprise
LT	Rebuild nuclear expertise and codify career paths
O	Construct an end-to-end Air Force nuclear sustainment enterprise system and revitalize the sustainment community
	Develop a comprehensive investment plan committed to meeting the requirements of the nuclear deterrence mission
LT	Create an environment of sustained advocacy for the nuclear deterrence mission
	Align authorities and responsibilities for nuclear deterrence mission requirements
LC	Leadership at all levels must make nuclear mission oversight and self-assessment their highest priority

## APPENDIX G: Report Comparison Chart

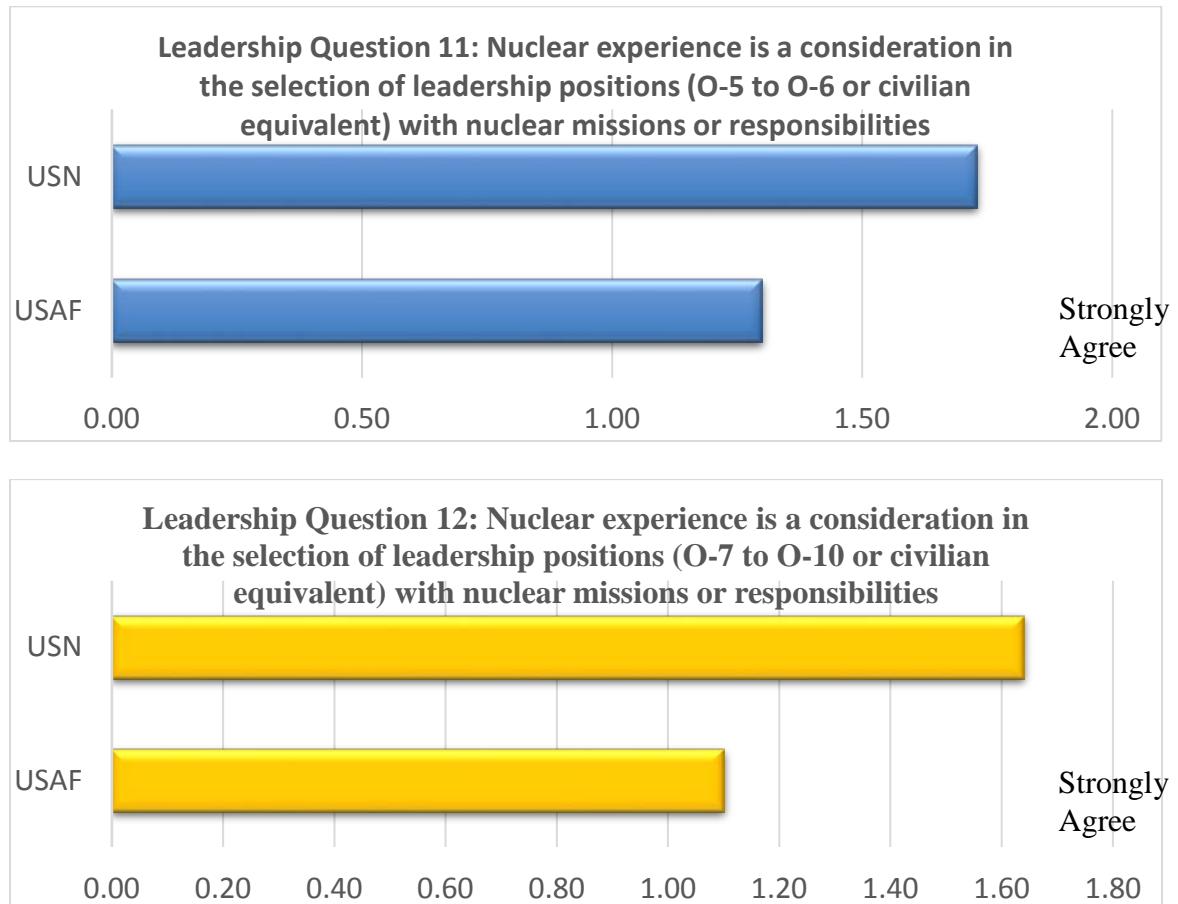
Reports	Year	Leadership			Culture			Organization			Training			
		L1	L2	L3	C1	C2	C3	C4	O1	O2	O3	T1	T2	T3
DoD Nuclear Weapons Management Phase I: The Air Force's Nuclear Mission	2006	X	X		X				X	X	X	X	X	X
DoD Nuclear Weapons Management Phase II: Review of the DoD Nuclear Mission	2008	X			X				X	X	X	X	X	X
Defense Science Board: Independent Assessment of the AF Nuclear Enterprise	2011	X			X			X	X	X	X	X	X	X
Defense Science Board: AF Nuclear Enterprise Follow-On Review	2013	X			X			X	X	X	X			
Independent Review of the DoD Nuclear Enterprise	2014	X	X		X			X	X	X	X	X	X	X
Summary of DoD Internal Nuclear Enterprise Review	2014	X			X			X	X	X	X	X	X	X
Total Hits		7	3	4	7	4	4	6	6	5	4	4	6	3

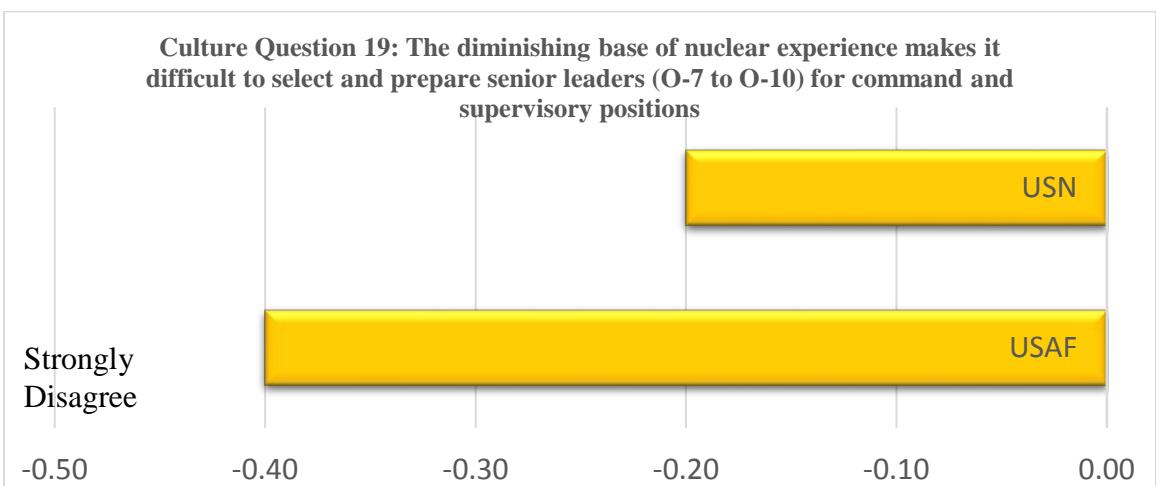
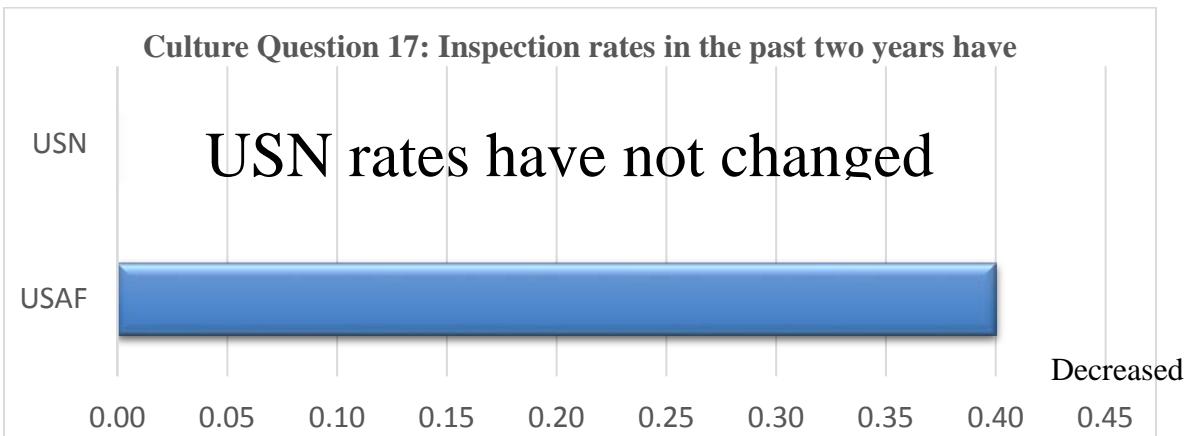
  

I1	Communicate Commitment
I2	Career Development
I3	Empower
C1	Inspection
C2	Career Development
C3	Transit Zero Defect
C4	PRP
O1	Resources (Personnel & equip)
O2	Organization Change
O3	Key Nuclear Elements
T1	Professional Military Education
T2	Quality Training
T3	Focus on Nuclear Miss

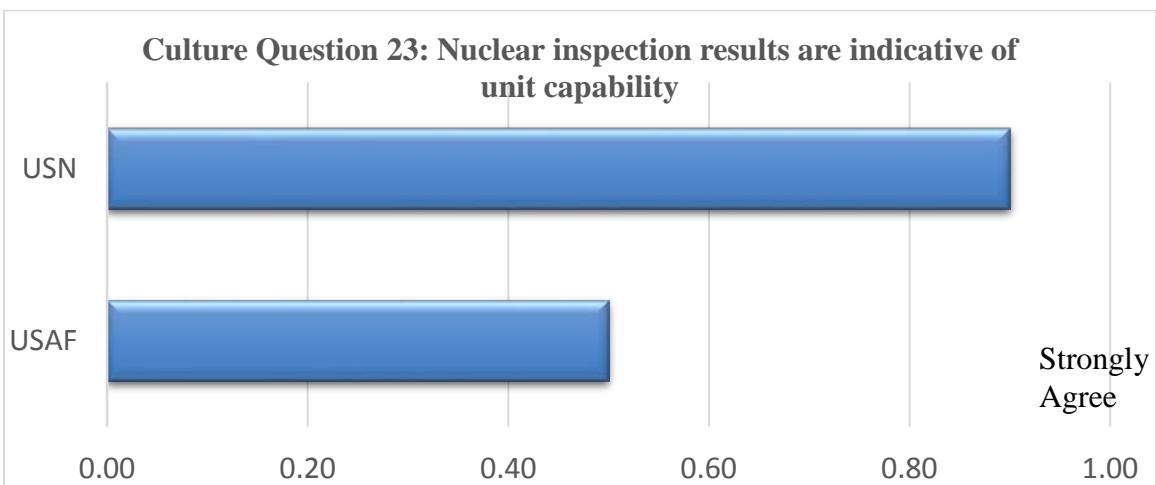
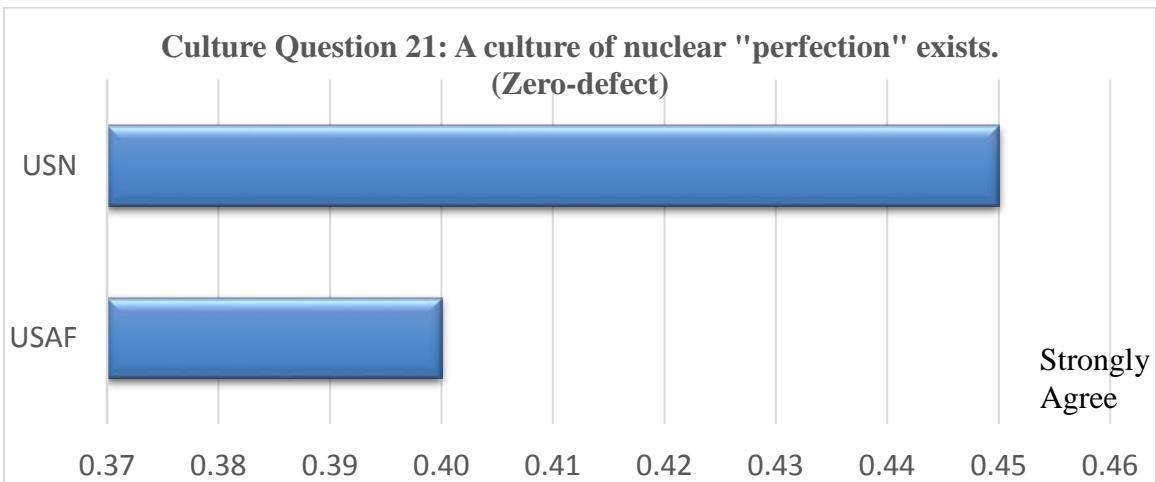
## APPENDIX H: Survey Questions Results

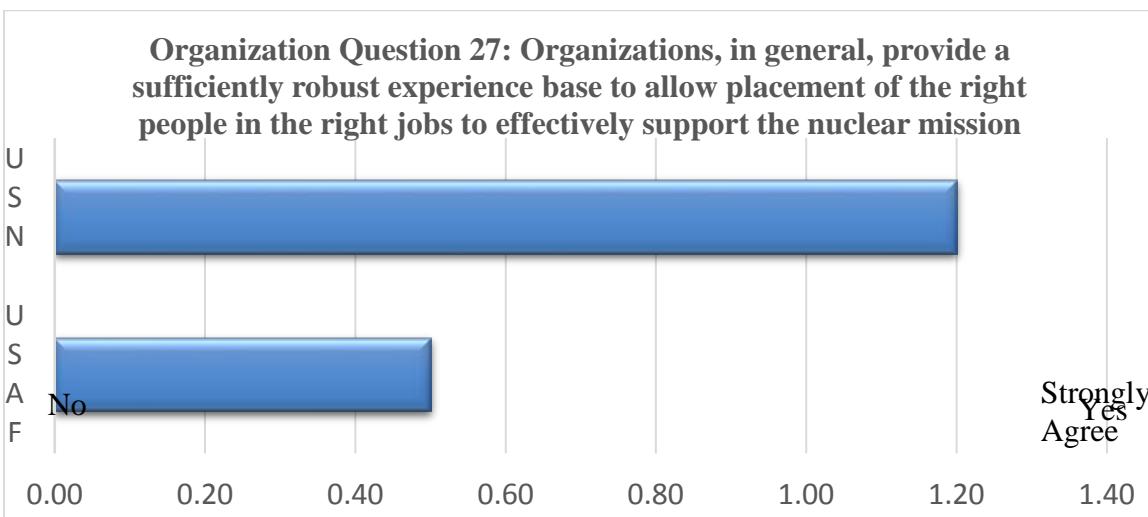
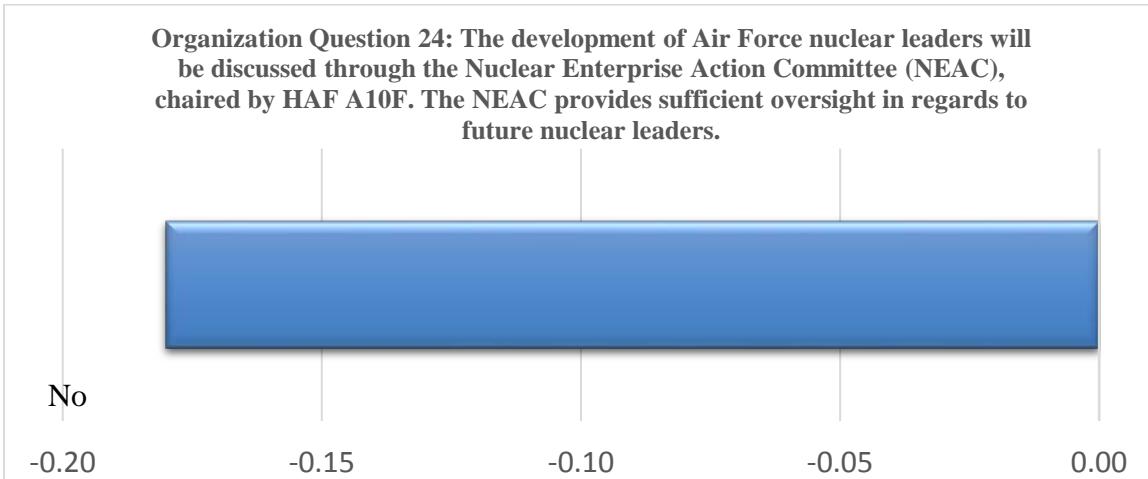
The following charts were not illustrated in the main research paper, so they are made available here for a reference.

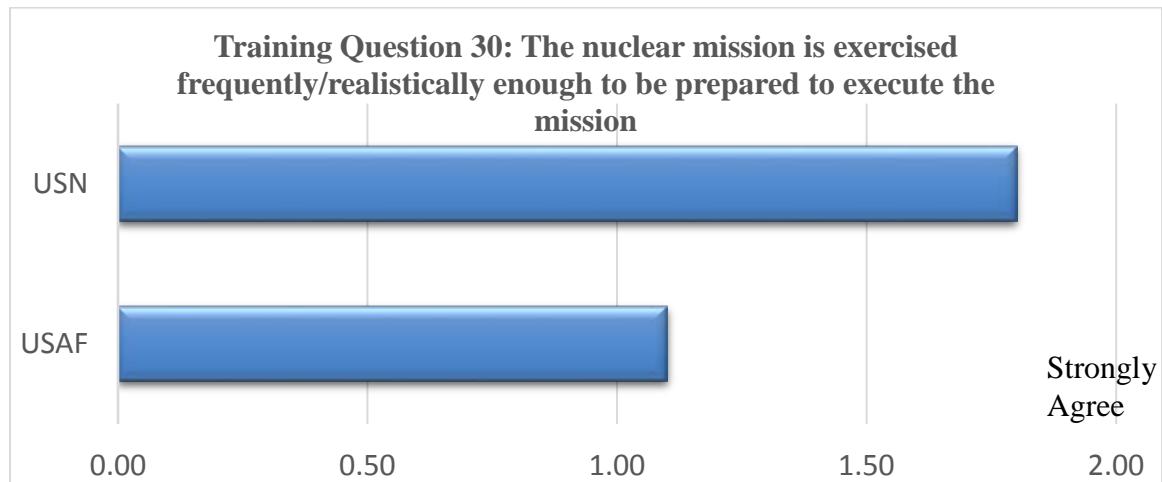




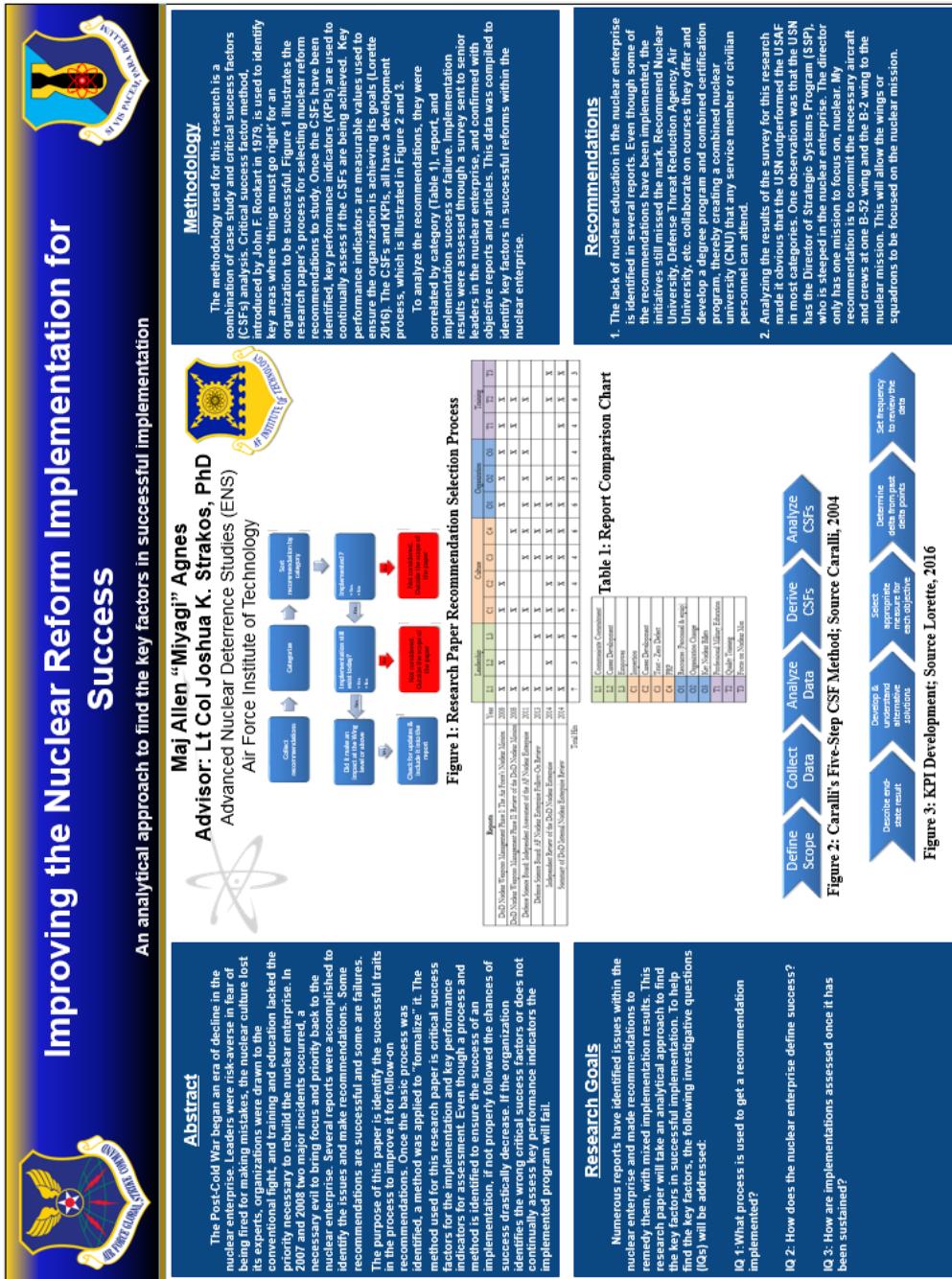
Culture Question 20 is omitted from the report due to the question containing For Official Use Only information.







## APPENDIX I: Graduate Research Paper Storyboard



## Bibliography

Air Force Global Strike Command. 2014. "Deployment Planning and Execution." *Air Force Instruction 10-403*. Barksdale AFB: Air Force Global Strike Command, April 1.

Air Force Global Strike Command. 2016. *Strategic Plan 2016*. Barksdale AFB, LA: Air Force Global Strike.

Air Force News Service. 2014. *DoD, Air Force Nuclear Force Reviews Consistent with Force Improvement Efforts*. November 14.  
<http://www.af.mil/News/ArticleDisplay/tabid/223/Article/554319/dod-air-force-nuclear-force-reviews-consistent-with-force-improvement-efforts.aspx>.

Alessi, Edward J, and James I Martin. 2010. "Conducting an Internet-based Survey: Benefits, Pitfalls, and Lessons Learned." *Social Work Research* 122-128.  
<https://www.verywell.com/what-is-a-survey-2795787>.

Bleil, John. 2009. *Roadmap for a New Command: Lessons from Strategic Air Command and Air Combat Command*. Maxwell Air Force Base, Al: School of Advanced Air and Space Studies Air University.

Bullen , Christine V., and John F. Rockart. 1981. *A Primer on Critical Success Factors*. Cambridge, MA: Center for Information Systems Research, MIT.

Camm, Frank, Laura Werber, Julie Kim, Elizabeth Wilke, and Rena Rudavsky. 2013. *Charting the Course for a New Air Force Inspection System*. Technical Report, Santa Monica: RAND Corporation.

Caralli, Richard A. 2004. *The Critical Success Factor Method: Establishing a Foundation for Enterprise Security Management*. Pittsburg, Pennsylvania: Software Engineering Institute .  
[www.sei.cmu.edu/library/abstracts/reports/04tr010.cfm](http://www.sei.cmu.edu/library/abstracts/reports/04tr010.cfm).

Center for Strategic and International Studies. 2008. *Reinvigorating the Air Force Nuclear Enterprise*. November 12.

Defense Science Board. 2013. *Air Force Nuclear Enterprise Follow-On Review*. Defense Science Board Task Force, DoD.

Defense Science Board. 2011. *Independent Assessment of The Air Force Nuclear Enterprise*. Report of the Defense Science Board Permanent Task Force on Nuclear Weapons Surety, DoD.

Department of Air Force. 2010. *Nuclear Weapons Personnel Reliability Program*. Washington, DC, November 2.

Department of Defense. 2014. *Independent Review of the Department of Defense Nuclear Enterprise*. Defense.gov, DoD.

Department of Defense. 2014. *Independent Review of the Department of Defense Nuclear Enterprise*. Defense.gov, DoD.

Department of Defense. 2014. *Internal Assessment of the Department of Defense Nuclear Enterprise*. Washington D.C.: Department of Defense.

Department of the Air Force. 2015. "Air Force Nuclear Programs and Policies in the Fiscal Year 2016 Defense Authorization Request and Implementation of Nuclear Enterprise Review Recommendations." *Senate Armed Services Committee*. Washington DC: Department of the Air Force. 8.

—. 2014. "Department of Defense Nuclear Enterprise." *Presentation to the Senate Armed Services Committee Subcommittee on Strategic Forces United States Senate*. Washington DC: Department of the Air Force. 11.

—. 2015. "Status of Air Force Nuclear and Strategic Systems." *Strategic Forces Subcommittee United States Senate*. Washington DC: Department of the Air Force. 18.

Donley, Michael B. 2008. *Reinvigorating the Air Force Nuclear Enterprise Center for Strategic and International Studies*. November 12. <http://www.af.mil/AboutUs/SpeechesArchive/Display/tabid/268/Article/143883/the-nuclear-enterprise.aspx>.

Dues, Brandon T. 2011. *Sustaining the Air Force Nuclear Enterprise through Officer Workforce Planning*. RAND.

Gates, Linda Parker. 2010. *Strategic Planning with Critical Success Factors and Future Scenarios: An Integrated Strategic Planning Framework*. Pittsburgh, Pennsylvania: Carnegie Mellon.

Gibson, James L., John M. Ivancevich, Jr., James H. Donnelly, and Robert Konopaske. 2012. *Organizations Behavior, Structure Processess*. New York City, NY: McGraw-Hill Irwin.

Hoffman, Frank G. 2009. *Hybrid Warfare and Challenges*. Washington, D.C: National Defense University, Institute for National Strategic Studies.

Hoffman, Michael. 2008. "237 Nuke Handling Deficiencies Cited Since 2001." *Military Times*. Military Times, February 12. [http://www.militarytimes.com/news/2008/02/airforce\\_dull\\_sword\\_080212w/](http://www.militarytimes.com/news/2008/02/airforce_dull_sword_080212w/).

Insinna , Valerie, and Dan Parsons. 2013. *United States Remains Concerned About Nuclear Weapons* . August. Accessed August 4, 2016. <http://www.nationaldefensemagazine.org/archive/2013/August/Pages/UnitedState sRemainsConcernedAboutNuclearWeapons.aspx>.

Leedy, Paul, and Jeanne Ormrod. 2013. *Practical Research Planning and Design*. Boston: Pearson.

Lefort, Frederic, Dave McMurray, and Joseph Tesvic. 2015. *Secrets to Implementation Success*. July. <http://www.mckinsey.com/industries/consumer-packaged-goods/our-insights/secrets-to-implementation-success>.

Lidwell, William, Kritina Holden, and Jill Butler. 2003. *Universal Principles of Design*. Beverly, Massachusetts: Rockport Publishers.

Lorette, Kristie. 2016. *How Do I Develop Key Performance Indicators?* Accessed June 2016. <http://smallbusiness.chron.com/develop-key-performance-indicators-4676.html>.

Mayfield, Malcom. 2014. *PRP Changes: "With great power comes great responsibility"*. September 17. Accessed July 11, 2016. <http://www.20af.af.mil/News/Article-Display/Article/825720/prp-changes-with-great-power-comes-great-responsibility>.

Mayring, Philipp. 2000. "Qualitative Content Analysis." *Forum Qualitative Sozialforschung/Forum: Qualitative Social Research* 114.

McLeod, Saul. 2008. *Likert Scale*. Accessed August 19, 2016. [www.simplypsychology.org/likert-scale.html](http://www.simplypsychology.org/likert-scale.html).

Moore, Sara. 2015. "Critical Partnerships." *Logliness* 4-8.

Navy Nukes. 2014. *20 Year Navy Nuke Tells All...* February 7. Accessed July 24, 2016. <http://www.navynukejobfinder.com/20-year-navy-nuke-tells-all/>.

Office of the Deputy Assistant to the Secretary of Defense. 2011. "The Nuclear Matters Handbook ." Washington, DC: Office of the Deputy Assistant to the Secretary of Defense.

Pampe, Carla. 2014. *FIP: Program Progresses to Bomber Community*. June 9. <http://globalstrike.dodlive.mil/tag/force-improvement-program/>.

Presser, Stanley, Mick Couper, Judith T. Lessler, Elizabeth Martin, Jean Martin, Jennifer M. Rothgeb , and Eleanor Singer. 2004. "Methods for Testing and Evaluating Survey Questions." *Public Opinion Quarterly* 109-130.

Schlesinger, James, Michael Carns, J.D. Crouch II, Jacques Gansler , Edmund Giambastiani, Jr., John Hamre, Franklin Miller, and Christopher Williams. 2008. *DoD Nuclear Weapons Management Phase II: Review of the DoD Nuclear Mission*. Washinton D.C.: Department of Defense.

Schlesinger, James, Michael Carns, J.D. Crouch II, Jacques Gansler, Jr., Edmund Giambastiani, John Hamre, Franklin Miller, and Christopher Williams. 2008. *DoD Nuclear Weapons Managment Phase I: The AF's Nuclear Mission*. Washington D.C.: Department of Defense.

Secretary of Defense Task Force. 2008. *The Air Force's Nuclear Mission*. Washington D.C.: Secretary of Defense.

Shane III, Leo. 2016. *Lawmakers Push for a Bigger Military Pay Raise and 27,000 more Troops*. April 19. Accessed July 11, 2016.  
<http://www.militarytimes.com/story/military/2016/04/19/ndaa-house-personnel-draft-pay-raise/83226262/>.

Spencer, Michelle, Aadina Ludin , and Heather Nelson. 2012. *The Unauthorized Movement of Nuclear Weapons and Mistaken Shipment of Classified Missile Components*. Maxwell AFB: USAF Counterproliferation Center .

Spring, Baker. 2011. *Nuclear Weapons Modernization Priorities After New START*. June 27. Accessed July 11, 2016.  
<http://www.heritage.org/research/reports/2011/06/nuclear-weapons-modernization-priorities-after-new-start>.

Stapenhurst, Tim. 2009. *The Benchmarking Book*. Oxford, United Kingdom: Elsevier .

Survey conducted by author. 2016.

Sweeney, Partrick. 2015. *A Primer for: Guidance for Employment of the Force, Joint Strategic Capabilities Plan, the Adaptive Planing and Execution System, and Global Force Management*. Professional Military Education Thesis, Newport: The United States Naval War College.

U.S Air Force. 2008. *Corona Fall 2008 Decision & Tasker Review*.

U.S. Air Force. 2014. *Air Force Recommends four-star position for Global Strike Command*. May 28. Accessed October 20, 2016. 2015.

U.S. Air Force Nuclear Task Force. 2008. *Reinvigorating the Air Force Nuclear Enterprise*. U.S. Air Force.

United States Air Force. 2008. *Air Force Conducts Nuclear Policy and Procedures Review*. February 12. Accessed October 2015.

<http://www.af.mil/News/ArticleDisplay/tabid/223/Article/124373/air-force-conducts-nuclear-policy-and-procedures-review.aspx>.

—. 2015. "PROGRAM ACTION DIRECTIVES (PADS), PROGRAM GUIDANCE LETTERS (PGLS), PROGRAMMING PLANS (PPLANS), AND PROGRAMMING MESSAGES (PMSGS)." Air Force Departmental Publishing Office .

United States Navy. 2015. *United States navy Biography*. May 11.

<http://www.navy.mil/navydata/bios/navybio.asp?bioID=418>.

USAF Counterproliferation Center at The Air University. 2013. *Nuclear College*. August 7. Accessed June 16, 2016. [http://www.au.af.mil/au/awc/cpc/re\\_nukecourse.aspx](http://www.au.af.mil/au/awc/cpc/re_nukecourse.aspx).

## **Vita**

Major Agnes is a 1999 graduate of Southern Illinois University with a Bachelor of Science in Computer Management Information Systems. He earned his commission at Officer Training School in August 2002.

After completing the B-52 Flight Training Unit, he reported to the 23d Bomb Squadron (BS) at Minot AFB, ND. Shortly after his arrival on station, he deployed to Diego Garcia as a Navigator in support of Operation Enduring Freedom. Upon his return to Minot AFB, he upgraded to Radar Navigator and took over as the 23d BS Life Support Flight Commander. In 2007, he volunteered for an Air Liaison Officer (ALO) assignment with the 2d Air Support Operations Squadron at Vilseck, Germany. During his assignment he supervised eighteen Tactical Air Control Party Airmen and deployed in support of Operation Iraqi Freedom. After his ALO assignment he returned back to the B-52 in the 96th BS. He has deployed a total of three times in support of Continuous Bomber Presence and assumed Expeditionary Bomb Squadron Director of Operations responsibility on his last deployment. He left his position as an Assistant Director of Operations and Evaluator Radar Navigator to become the 608 Air Operations Center Chief of Master Air Attack Plan Team. He planned and coordinated Bomber Assurance and Deterrence missions for Joint Functional Component Commander Global Strike. His last duty assignment was the Chief of Commander's Action Group 8AF, Barksdale AFB, LA.

In August 2015 Major Allen Y. Agnes, was selected for the School of Advanced Nuclear Deterrence Studies at Kirtland AFB, NM. Upon graduation he will be assigned to U.S. Strategic Command.

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14. ABSTRACT This research identifies the method used for successful implementations. This method is critical to the nuclear enterprise as it will continually guide the program. Post-Cold War began an era of decline in the nuclear enterprise. Leaders were risk-averse in fear of being fired for making mistakes, the nuclear culture lost its experts, organizations were drawn to the conventional fight, and training lacked the priority necessary to rebuild the nuclear enterprise. In 2007 and 2008 two major incidents occurred, a necessary to bring focus and priority back to the nuclear enterprise. Several reports were accomplished to identify the issues and recommendations. Some recommendations are successful and some are failures. The purpose of this paper is identify the successful traits in the process to improve it for follow-on recommendations. Once the basic process was identified, a method was applied to “formalize” it. The method used for implementation is critical success factors (CSFs) and key performance indicators (KPIs) for assessment. Even though a process and method is identified to ensure the success of an implementation, if not properly followed the chances of success drastically decrease. If the organization identifies the wrong CSFs or does not continually assess KPIs the implemented program will fail.					
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